ORDER NO. AD9802019C8

Service Manual

Compact Disc Player

CD Changer

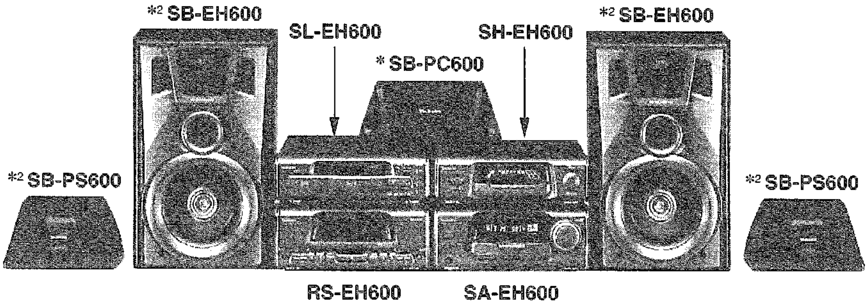
SL-EH600

COMPACT disc DIGITAL AUDIO

MASH*1
multi-stage noise shaping

Colour
(H) .... Gray Type

Area
(E) .... Europe, Russia, Asia, Latin America, Middle East, Africa, New Zealand and Australia.



System	**SC-EH600**
Sound Processor	SH-EH600
Tuner / Amplifier	SA-EH600
CD Changer	**SL-EH600**
Cassette Deck	RS-EH600
Front Speakers*2	SB-EH600
Center Speaker*2	SB-PC600
Surround Speakers*2	SB-PS600

*1 : MASH is a trademark of NTT
*2 : Made in PAES

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

RAE0152Z MECHANISM SERIES

Specifications

Audio Section

No. of channels :	2 (left and right, stereo)
Wow and flutter :	Below measurable limit
Digital filter :	8 fs
DA converter :	1 bit DAC MASH

Pickup Section

Wavelength :	780 nm

General

Dimensions :	287(W) × 89(H) × 336(D) mm
Weight :	2.4 kg

Notes : Specifications are subject to change without notice.
Weight and dimensions are approximate.

⚠WARNING
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

© 1998 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Contents

Page
Handling Precautions for Traverse Deck ... 2
Precaution of Laser Diode ... 2, 3
Location of Controls ... 3
How to Set the "Shipping Mode" ... 3
Operation Checks and
Main Component Replacement Procedures ... 4 – 15
To Supply Power Source ... 16
To Check Signals ... 16
Error Code Display and Servo Adjustment Function ... 17, 18
Schematic Diagram ... 19 – 23
Page
Printed Circuit Board Diagram ... 24, 25
Type Illustration of IC's, Transistors and Diodes ... 26
Wiring Connection Diagram ... 26
Block Diagram ... 27 – 29
Troubleshooting Guide ... 30, 31
Terminal Function of IC's ... 32 – 34
Replacement Parts List ... 35 – 36
Cabinet Parts Location ... 37
Loading Unit Parts Location ... 38

NOTE:

Refer to the service manual for Model No. SA-EH600 for information on "Accessories", "Connections", "Installation" , and "Packaging".

CAUTION:
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

Handling Precautions for Traverse Deck

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body. So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

• Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To protect the laser diode against electrostatic breakdown, short the flexible board (FFC board) with a clip or similar object.
3. Take care not to apply excessive stress to the flexible board (FFC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

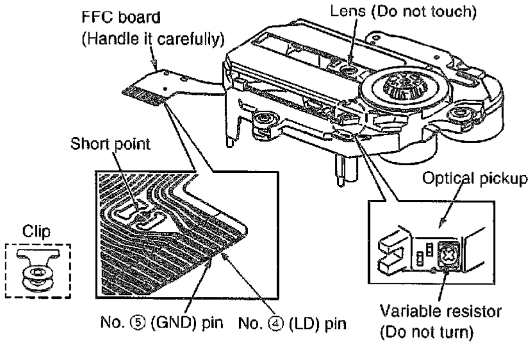
• Grounding for electrostatic breakdown prevention

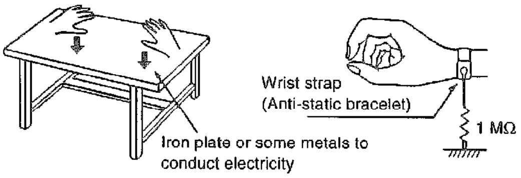
1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conducive material (sheet) or steel sheet on the area where the traverse deck (optical pickup) is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

Caution when Replacing the Traverse Deck:

The traverse deck has a short point shorted with solder to protect the laser diode against electrostatic breakdown. Be sure to remove the solder from the short point before making connections.





Precaution of Laser Diode

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780 nm
Maximum output radiation power from pick up: 100 µW/VDE

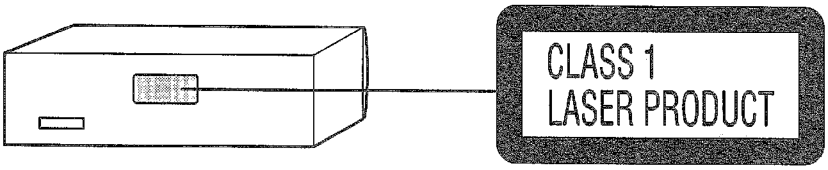
Laser radiation from the pick up unit is safety level, but be sure the followings:

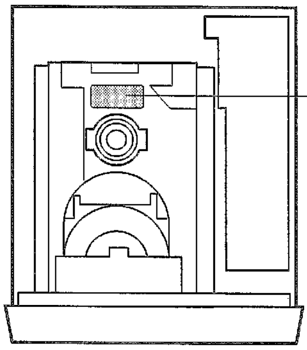
1. Do not disassemble the pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pick up unit. It was already adjusted.
3. Do not lock at the focus lens using optical instruments.
4. Recommend not to lock at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit adgestrahit.
Wellenlänge: 780 nm
Maximale strahlungsleistung der laserinheit: 100 µW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

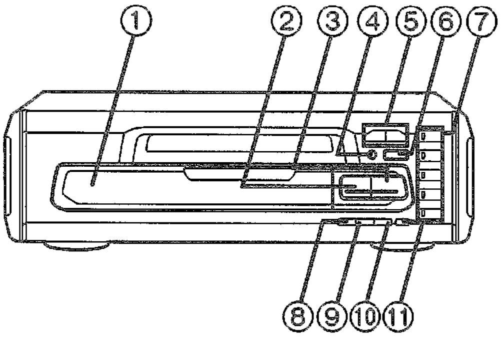
1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.





DANGER	INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM.	(Inside of product)
ADVARSEL	USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.	(Indersiden at apparatet)
VARO!	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.	(Tuotteen sisällä)
VARNING	OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.	(Apparatens insida)
ADVARSEL	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.	(Produktets innside)
VORSICHT	UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.	(Im Inneren des Gerätes)

■ Location of Controls



① Disc tray
② Stop button (■)
③ Play button and indicator (▷)
④ Pause button (❚❚)
⑤ Skip/search buttons (|◀◀/◀◀ , ▶▶/▶▶|)
⑥ Disc tray open/close button (⏏ , OPEN/CLOSE)
⑦ Disc select buttons and indicators (DISC, 1–5)
⑧ Random play button (RANDOM)
⑨ Repeat button (REPEAT)
⑩ AI edit button (AI EDIT)
⑪ Disc check button (⏏ NEXT OPEN)

■ How to Set the “Shipping Mode”

When the alignment of the unit is finished, please make sure to set it to the “Shipping Mode” as following procedures;

1. Take all CDs out from the unit.
2. With pressing the STOP key for more than 6 seconds.
   The traverse unit is lifted up to the top place, and all the disc trays are fixed automatically.
3. Turn the unit off.

NOTE:
The next time the unit is turned on, the “Shipping Mode” is automatically cancelled.

Operation Checks and Main Component Replacement Procedures

NOTE 1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.

2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.

3. Select items from the following index when checks or replacement are required.

4. Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.

• Contents

CD Changer Disassembly / Reassembly page.

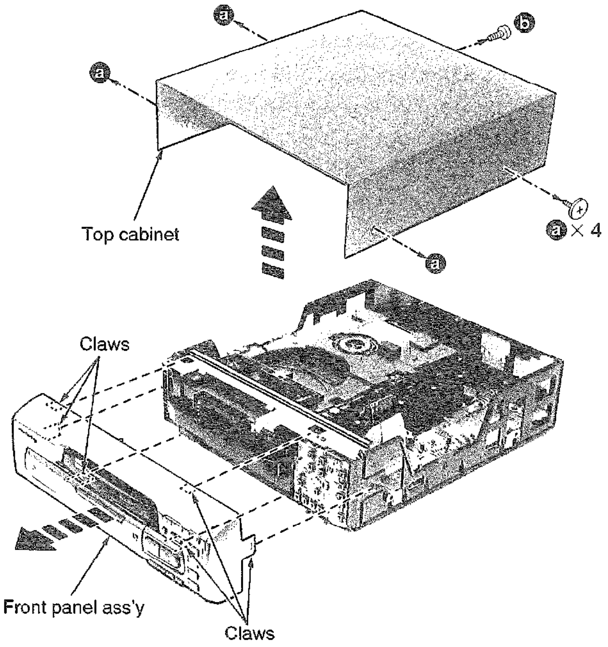
1. Removal for the CD changer unit. • 4,5.
2. Removal for the traverse unit. • 6.
3. Disassembly for the CD changer unit. • 6,7.
4. Reassembly for the CD changer unit. • 8~11.
5. Inspection for the CD changer unit. • 11.

Checking Procedures for each P.C.B.
1. Checking for the main P.C.B.. • 12.
2. Checking for the operation P.C.B.. • 12,13.
3. Checking for the CD servo P.C.B.. • 13,14.

Main Component Replacement Procedures
1. Replacement for the traverse deck ass'y. • 14,15.

CD Changer Disassembly / Reassembly

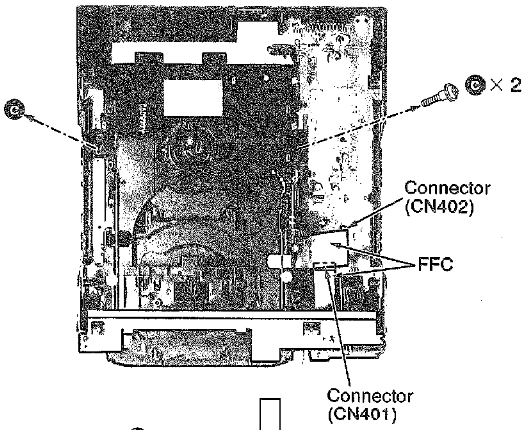
1. Removal for the CD changer unit



Step 1 Remove the 5 screws.

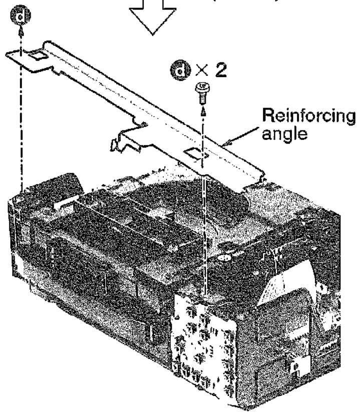
Step 2 Remove the top cabinet.

Step 3 Release the 6 claws, and then remove the front panel ass'y.


c
c × 2
Connector (CN402)
FFC
Connector (CN401)

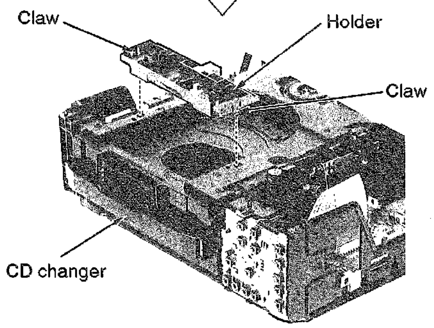
Step 4 Pull out the FFC (2 points).

Step 5 Remove the 2 screws.

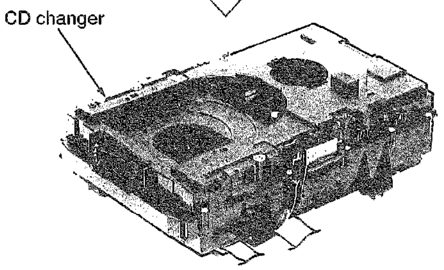

d
d × 2
Reinforcing angle

Step 6 Remove the 2 screws.

Step 7 Remove the reinforcing angle.


Claw
Holder
Claw
CD changer

Step 8 Release the 2 claws, and then remove the holder.

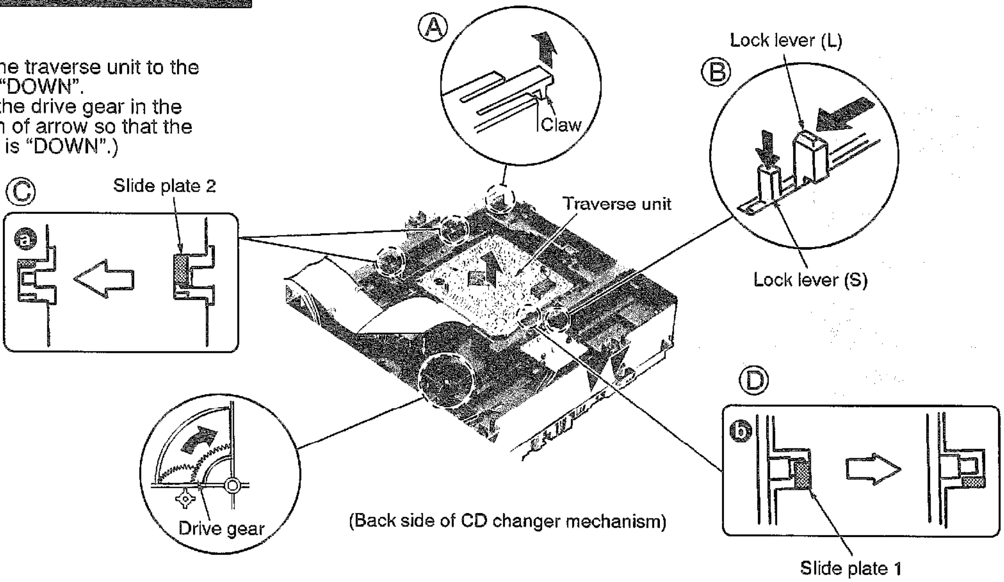


The CD changer unit will be removed.

2. Removal for the traverse unit

NOTE

Locate the traverse unit to the position "DOWN".
(Rotate the drive gear in the direction of arrow so that the position is "DOWN".)


Ⓐ
Claw
Lock lever (L)
Ⓑ
Lock lever (S)
Traverse unit
Ⓒ
Slide plate 2
ⓐ
Drive gear
Ⓓ
ⓑ
Slide plate 1

(Back side of CD changer mechanism)

Procedures

Step 1 Push the lock lever (S) with lifting the claw, and then push the lock lever (L) in the direction of arrow (➡).

Refer to the figures Ⓐand Ⓑ.

Step 2 The slide plate 1 and 2 of traverse retain boss ⓐ and ⓑ are open.

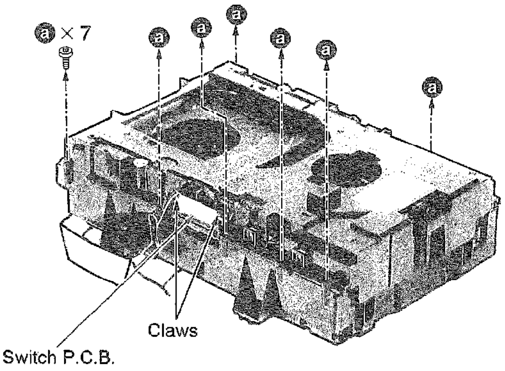
Refer to the figures Ⓒand Ⓓ .

Step 3 Pull the traverse unit in the direction of arrow (➡).

(The FFC is connected.)

Step 4 The traverse unit will be removed.

3. Disassembly for the CD changer unit

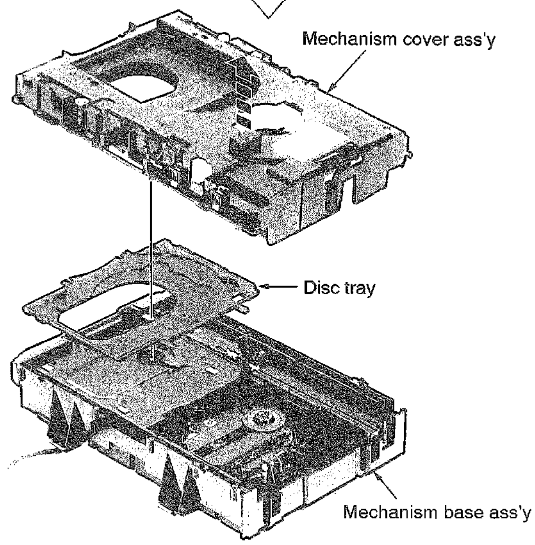

ⓐ × 7
ⓐ
ⓐ
ⓐ
ⓐ
ⓐ
ⓐ
Claws
Switch P.C.B.

NOTE

Locate the traverse unit to the position "DOWN".

Step 1 Release the 2 claws, and then remove the switch P.C.B..

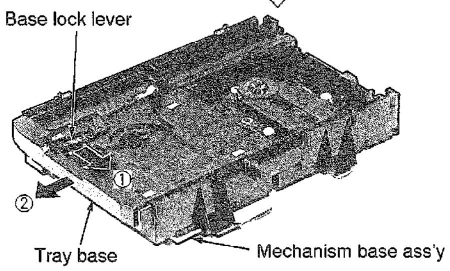
Step 2 Remove the 7 screws.


Mechanism cover ass'y
Disc tray
Mechanism base ass'y

Step 3 Remove the mechanism cover ass'y.

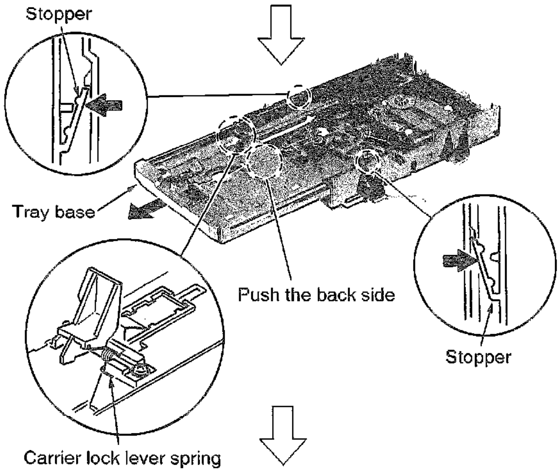
(!) 4 disc trays contacted to the mechanism cover ass'y will be removed.
1 disc tray is removed to the mechanism base ass'y.

Step 4 Remove the disc tray sided mechanism base ass'y.


Base lock lever
①
②
Tray base
Mechanism base ass'y

Step 5 Unlock the base lock lever.

Step 6 Draw the tray base until it will be stopped.

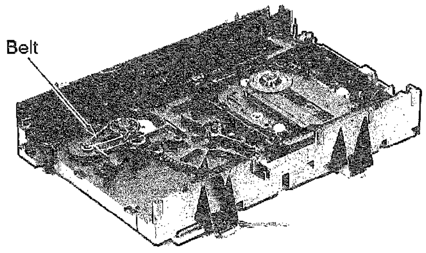

Stopper
Tray base
Push the back side
Stopper
Carrier lock lever spring

Step 7 Release the stopper manually.

Step 8 Draw the tray base.

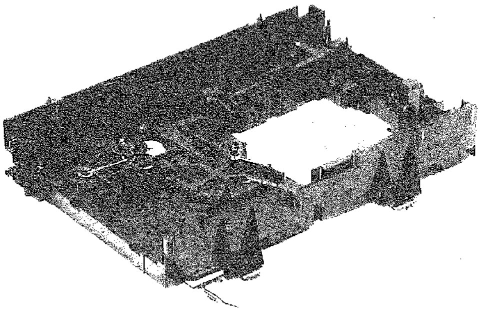
(!) In case that the tray base can not be open due to hooking, draw the tray base with finger pressing the back side indicated by ◌ of base. (Take care handling of stopper.)

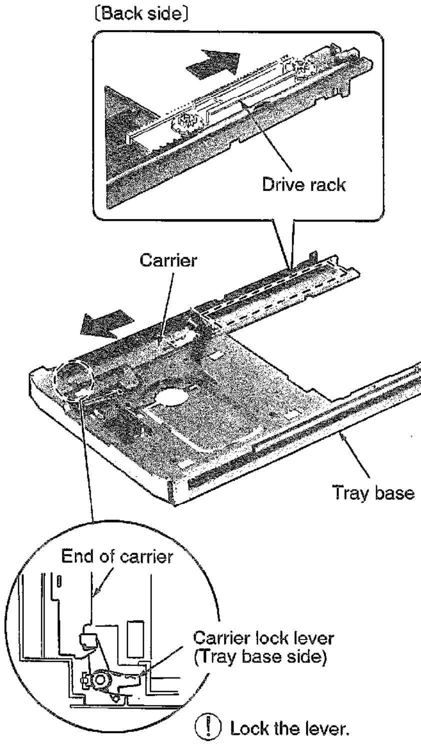
(!) Take care not avoid the carrier lock lever spring.



The belt and each part can be replaced after above procedures are performed.

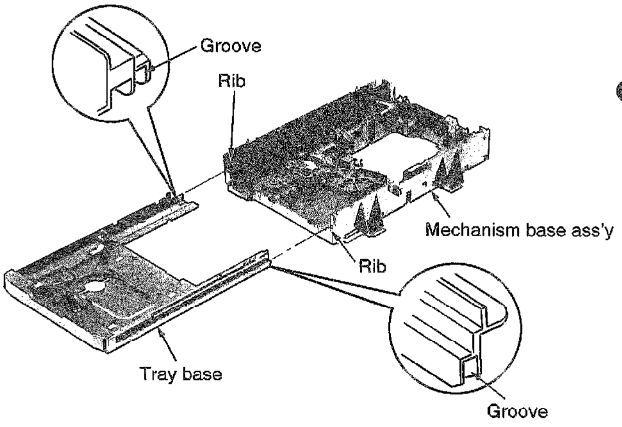
4. Reassembly for the CD changer unit



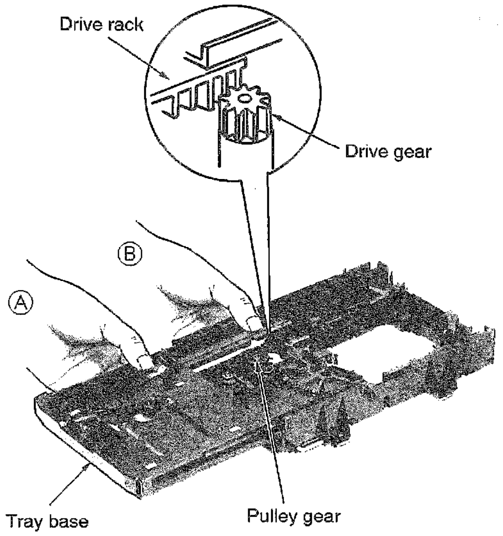

[Back side]
Drive rack
Carrier
Tray base
End of carrier
Carrier lock lever
(Tray base side)
(!) Lock the lever.

Step 1 Pull the drive rack in the direction of arrow (➡) fully.

Step 2 Slide the carrier in the direction of arrow (➡).


Groove
Rib
Mechanism base ass'y
Rib
Tray base
Groove

Step 3 Insert the tray base to the mechanism base ass'y with keeping the procedures **Step 1** and **Step 2** .


Drive rack
Drive gear
Ⓑ
Ⓐ
Tray base
Pulley gear

Step 4 ◉

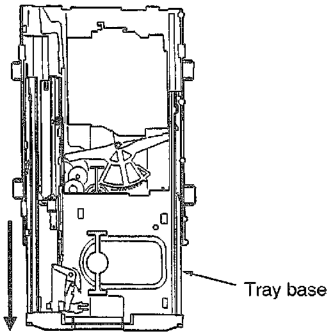
Insert the drive rack until the driver rack interferes with the drive gear.

Position Ⓐ

Step 5 ◉

Rotate the pulley gear clockwise gently by hand (5 or 6 times).

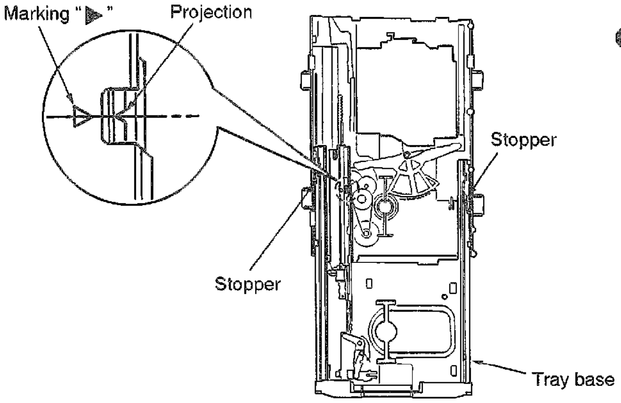
(!) When the gear begins to rotate, rotate the pulley gear with finger pressure (position Ⓑ) because the drive rack gear will fall free.



Step 6

Allow the tray base be open manually.

※ Draw the inserted tray base forward.

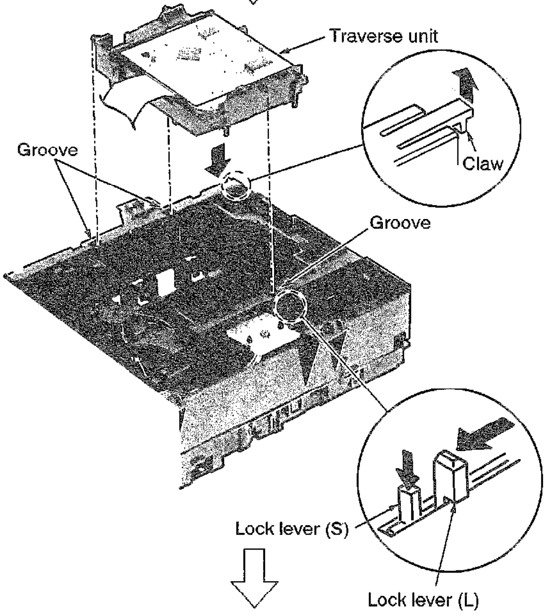

Marking "▶"
Projection
Stopper
Stopper
Tray base

Step 7

Locate the projection at the marking "▶" as shown left.

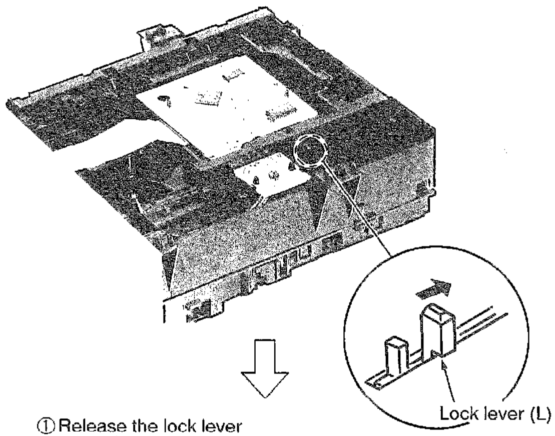
(!) In case that the stated above is not operated draw the tray base again.
(Refer to item (!) on page 7)

(Retry the item marked with ◉)


Traverse unit
Groove
Claw
Groove
Lock lever (S)
Lock lever (L)

Step 8 While lifting the claw upward, press the lock lever (L) with forcing the lock lever (S).

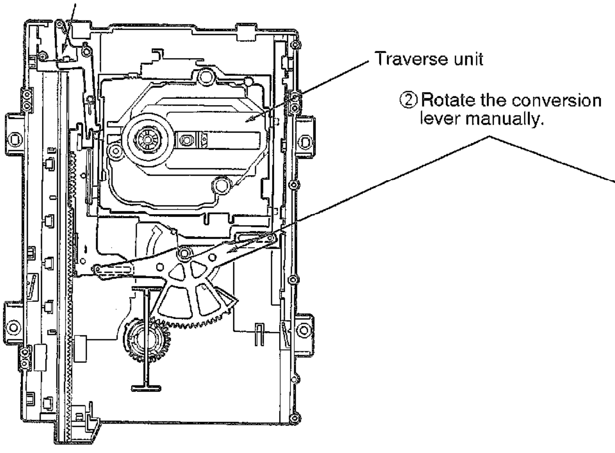
Step 9 Align the boss of traverse unit with the groove of mechanism base ass'y.


Lock lever (L)

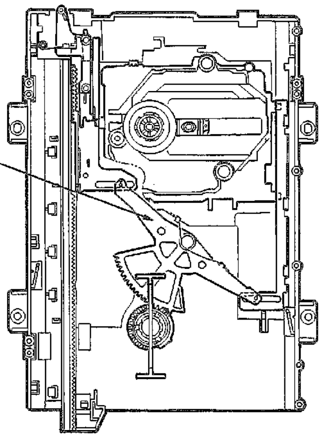
Step 10 Pull the lock lever (L) in the direction of arrow (➡).

After assembly, confirm the traverse unit operation.

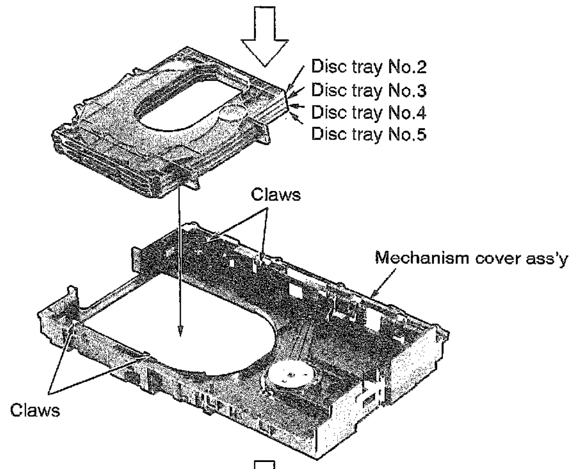
① Release the lock lever manually.


Traverse unit
② Rotate the conversion lever manually.

〈"DOWN"stated〉

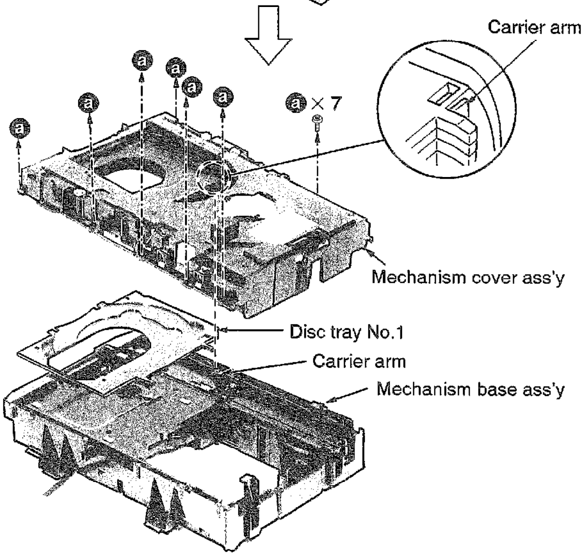


〈"UP"stated〉


Disc tray No.2
Disc tray No.3
Disc tray No.4
Disc tray No.5
Claws
Mechanism cover ass'y
Claws

Step 11 Install the 4 disc trays to the mechanism cover ass'y. (Allow them to lock with claws.)

ⓘ Install the disc trays in specific order. (Disc tray No. is indicated on the tray.)


Carrier arm
a
a
a
a
a
a
a × 7
Mechanism cover ass'y
Disc tray No.1
Carrier arm
Mechanism base ass'y

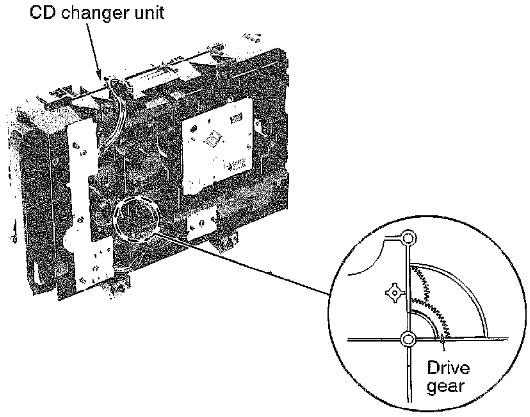
Step 12 Place the disc tray No.1 on the mechanism base ass'y.

Step 13 Install the mechanism cover ass'y.

ⓘ The carrier arm is positioned as shown left.

5. Inspection for CD changer unit

- Begin the inspections in condition that the traverse is kept from disc tray. (5 disc trays in the store compartment.)


CD changer unit
Drive gear

※ Manual operations

① Rotate the drive gear counterclockwise manually.

↓

The traverse runs over the disc tray, and rises at maximum level.

↓

② Rotate the drive gear clockwise manually.

↓

The disc tray moves and is stored in upper compartment.

↓

The tray base is open.

↓

③ Again rotate the drive gear counterclockwise manually.

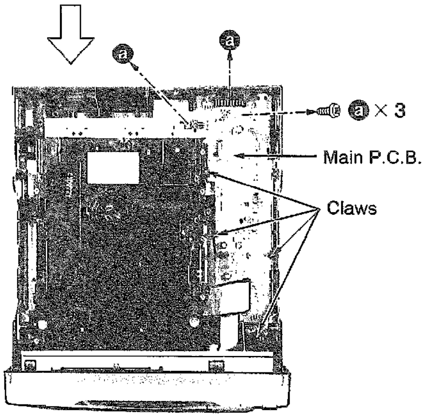
↓

The tray base is closed, and then it returns to start position.

Checking Procedures for each P.C.B.

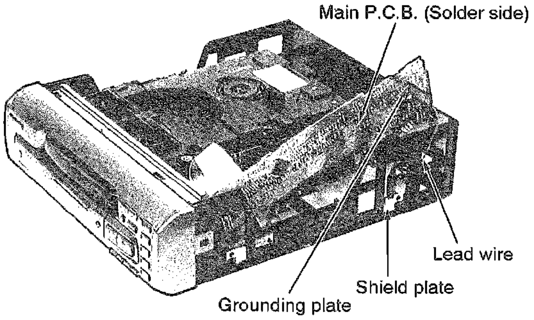
1. Checking for the main P.C.B.

Perform the items Step 1 and Step 2 for CD changer unit removal (Refer to page 4.)


a
a
a × 3
Main P.C.B.
Claws

Step 1 Remove the 3 screws.

Step 2 Remove the 4 claws, and then stand the main P.C.B..

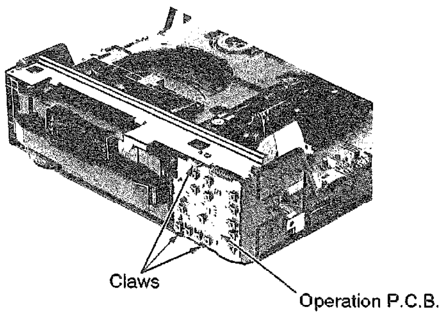

Main P.C.B. (Solder side)
Lead wire
Shield plate
Grounding plate

Step 3 Connect the lead wire between the grounding plate and shield plate.

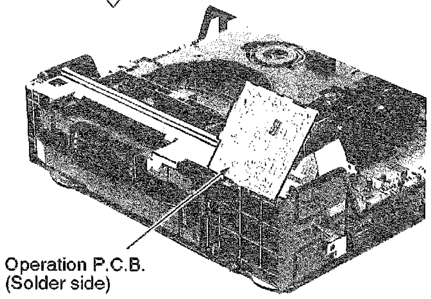
Check the main P.C.B. (solder side) as shown left.

2. Checking for the operation P.C.B.

Perform the items Step 1 ~ Step 3 for CD changer unit removal (Refer to page 4.)


Claws
Operation P.C.B.

Step 1 Release the 3 claws, and then upset the operation P.C.B..

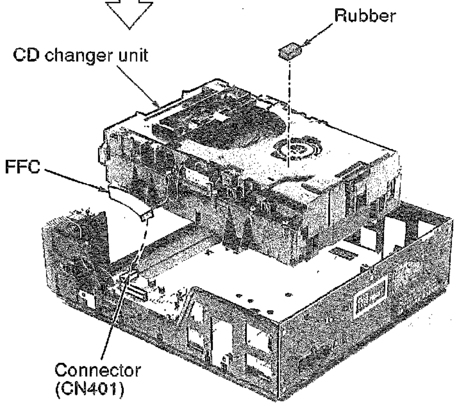

Operation P.C.B.
(Solder side)

Check the operation P.C.B. (solder side) as shown left.

3. Checking for the CD servo P.C.B.

Perform the items Step 1 ~ Step 7 for CD changer unit removal (Refer to pages 4 and 5.)

Perform the items Step 1 ~ Step 4 for traverse unit removal (Refer to page 6.)

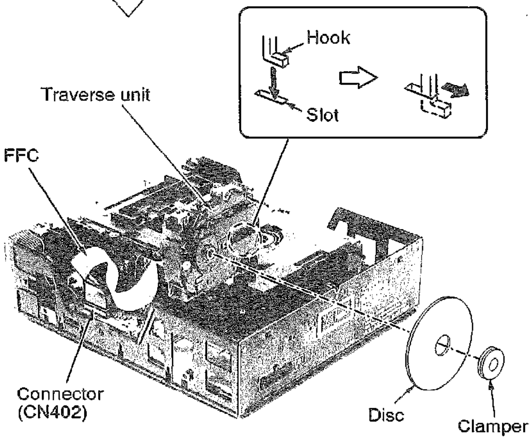

Rubber
CD changer unit
FFC
Connector
(CN401)

Step 1 Install the CD changer unit to the set.

(!) Screw tighten is not necessary.

Step 2 Connect the FFC to the connector (CN401).

Step 3 Remove the rubber.

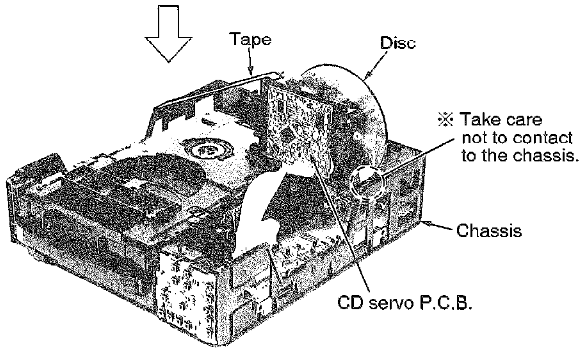

Hook
Slot
Traverse unit
FFC
Connector
(CN402)
Disc
Clamper

Step 4 Align the hook of traverse unit with the slot, and then stand it.

Step 5 Attach the disc and clamper with magnet to the traverse unit.

(!) Prepare the clamper used ordinaly.

Step 6 Connect the FFC to the connector (CN402).


Tape
Disc
※ Take care not to contact to the chassis.
Chassis
CD servo P.C.B.

Step 7 Apply the tape between the chassis and traverse unit not to contact the disc with chassis.

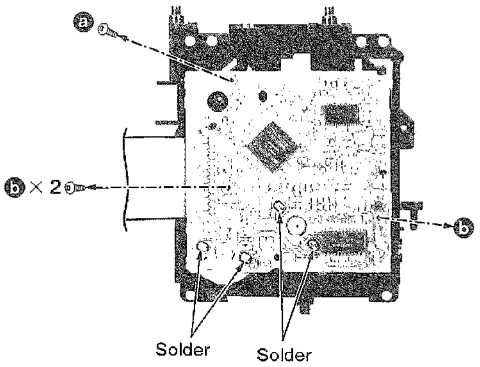
Check the CD servo P.C.B. (solder side) as shown left.

Main Component Replacement Procedures

1. Replacement for the traverse deck ass'y

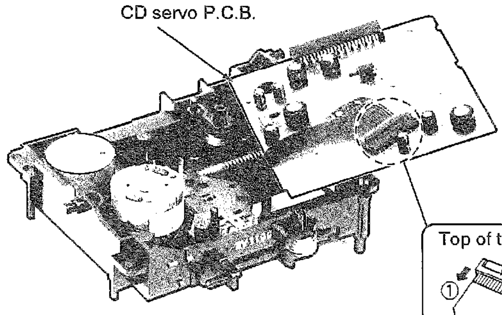
Perform the items **Step 1** ~ **Step 7** for CD changer unit removal (Refer to pages 4 and 5.)

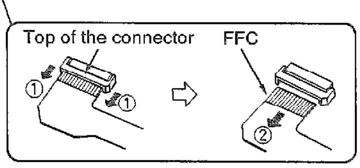
Perform the items **Step 1** ~ **Step 4** for traverse unit removal (Refer to page 6.)


ⓐ
ⓑ × 2
ⓑ
Solder
Solder

Step 1 Remove the 3 screws.

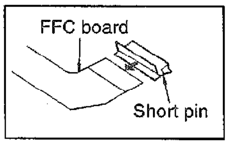
Step 2 Unsolder the motor terminals.

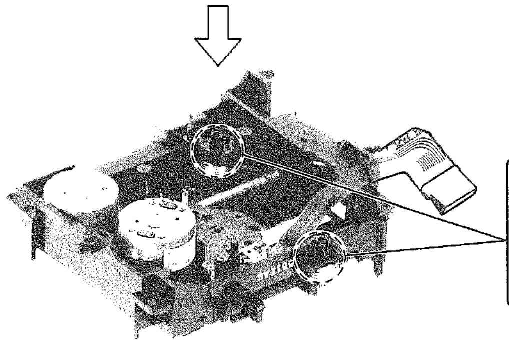

CD servo P.C.B.


Top of the connector
FFC
①
①
②

Step 3 Remove the FFC from the connector, and then remove the servo P.C.B..

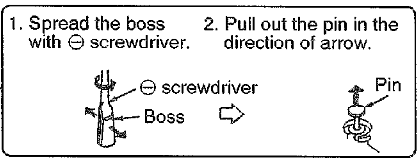
Caution:
Insert a short pin into the traverse unit FFC board.
(Refer to "Hnading Precautions for Traverse Deck" on page 2.)

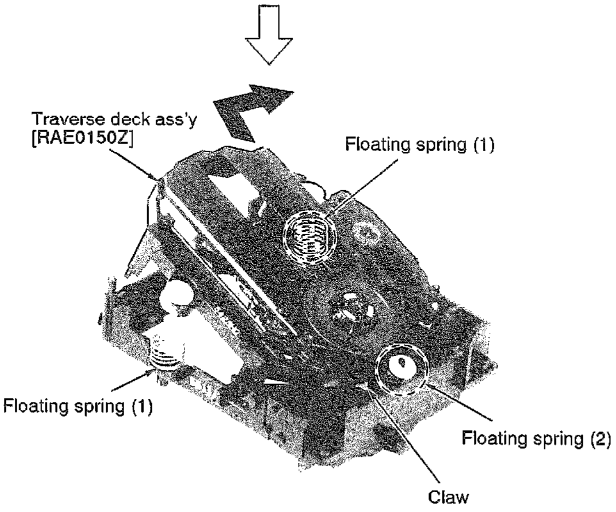

FFC board
Short pin



Step 4 Remove the pins.

1. Spread the boss with ⊖ screwdriver.
2. Pull out the pin in the direction of arrow.


⊖ screwdriver
Boss
Pin


Traverse deck ass'y
[RAE0150Z]
Floating spring (1)
Floating spring (1)
Floating spring (2)
Claw

Step 5 Release the claws, and then remove the traverse deck ass'y.

ⓘ Be careful not to lose the 3 springs because those will also be removed on removal of the traverse deck ass'y.

Installation of the CD servo P.C.B.

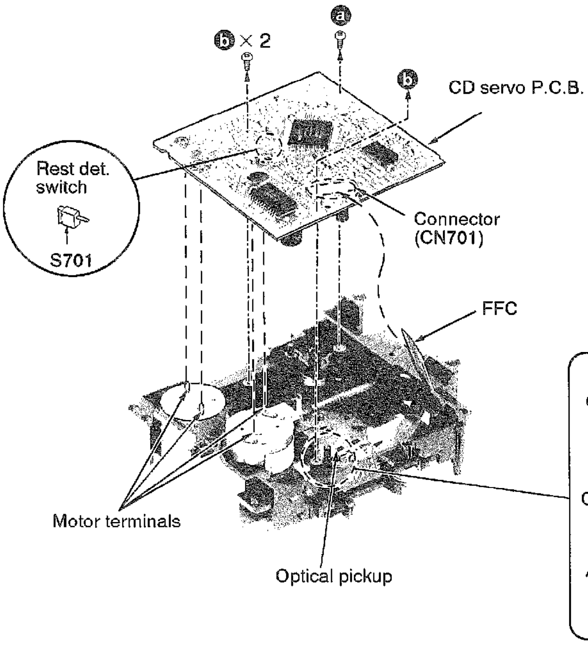
Step 1 Before installing the CD servo P.C.B., move the optical pickup toward the outer edge from mark "▼".

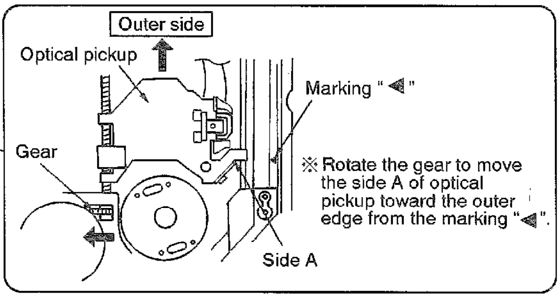
ⓘ In case that the optical pickup is not moved toward the outer edge from the marking, the rest detect switch (S701) mounted on the CD servo P.C.B. may be damaged.

Step 2 Connect the FFC to the connector.

Step 3 Install the CD servo P.C.B., and then tighten screws.

ⓘ After tightening screws, solder each motor terminal.


ⓑ × 2
ⓐ
ⓑ
CD servo P.C.B.
Rest det. switch
S701
Connector (CN701)
FFC
Motor terminals
Optical pickup


Outer side
Optical pickup
Marking "◀"
Gear
Side A

※ Rotate the gear to move the side A of optical pickup toward the outer edge from the marking "◀".

■ To Supply Power Source

Cautions:
- It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens.
- Avoid exposure to the laser beam, especially when performing adjustments.

This unit SL-EH600 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig.1)

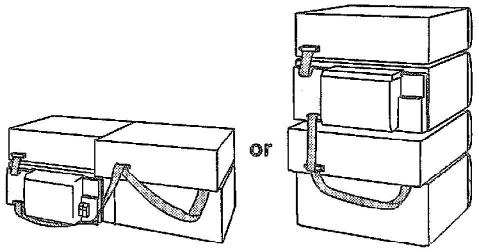


Fig. 1

When you have to test and service the unit SL-EH600 alone, use the following method to supply power source and operate the unit:

Apply +10 V DC power to the section between L1 (DC10V) and E1(GND). **(Shown in Fig.2)**

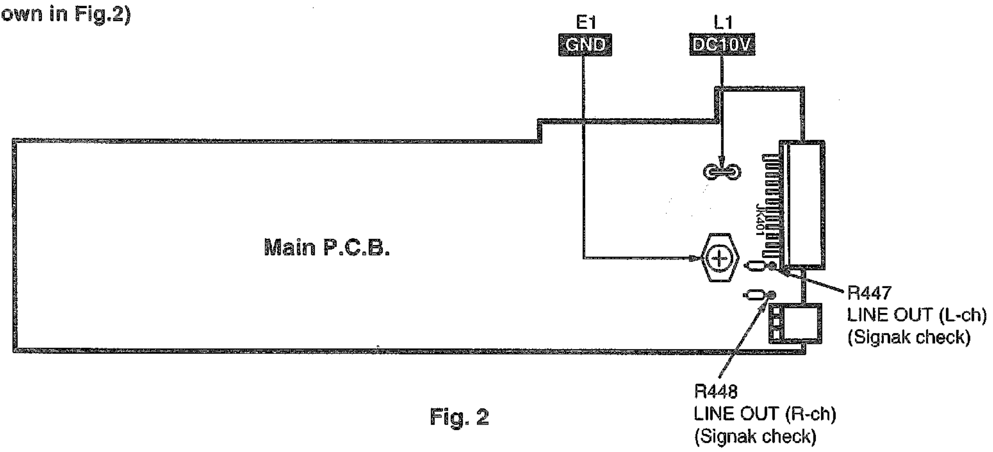


Fig. 2

■ To Check Signals

Connect the oscilloscope or the speaker with built-in amplifier to the section between LINE OUT (L-ch) of the resistor R447 and the GND as well as the section between LINE OUT (R-ch) of the resistor R448 and the GND and check if the signals are outputting from this unit. **(Shown in Fig. 2)**

Error Code Display and Servo Adjustment Function

This unit has an error code display function, so that if the unit operates incorrectly, the fault is displayed using an error code on the FL display of the Tuner/Amplifier (SA-EH600). It also has a servo adjustment function for displaying the status of servo system functions (Focus, Tracking, CLV Servo) on the FL display of the Tuner/Amplifier.

The system control IC and FL display are part of the Tuner/Amplifier so make sure the system has been connected properly before using three functions. (This unit can be operated independently, although the error code display and servo adjustment functions cannot be used.)

Use these two functions for guidance during fault diagnosis and repair.

Note:
Check beforehand for scratching or soiling of the test disc (SZZP1054C), and soiling or other problems with the pickup lens.

Error code display procedure

Automatic adjustment results

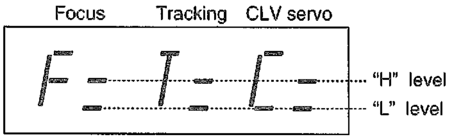
1. Turn the power ON.
2. Load the test disc (SZZP1054C).
3. Hold down the REPEAT button for at least 2 seconds, and then press the STOP button for at least 2 seconds while continuing to hold down the REPEAT button.
4. A servo section error code is displayed. (See **Table 2**.) Use this error code display as a guideline for finding the malfunction point in the servo circuitry. If the error code **"E-00"** is displayed, the unit is "OK (No problem)."

Checking the mechanism switches

1. Press the F. SKIP button.
2. A mechanism OK/NG error code is displayed. (See **Table 1**.) This error code can be used diagnose whether or not the mechanism is OK. If there are multiple errors, these can be displayed successively by pressing the F. SKIP button.
3. Remove the disc and turn the power OFF. (The error code display mode is canceled.)

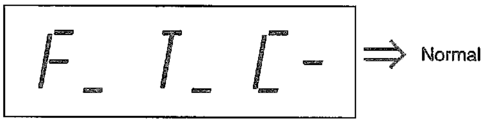
Servo adjustment procedure

1. Turn the power ON.
2. Load the test disc (SZZP1054C).
3. Hold down the REPEAT button for at least 2 seconds, and then press the PAUSE button for at least 2 seconds while continuing to hold down the REPEAT button.
4. Press the ▶ (PLAY) button, and play for 10 seconds.
5. Servo adjustment results are displayed.



6. Remove the disc and turn the power OFF.

(Example)



	"L" level	"H" level
Focus system	normal	defective
Tracking system	normal	defective
CLV servo system	defective	normal

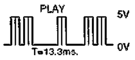
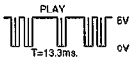
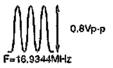
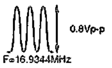
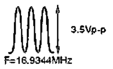
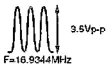
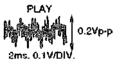
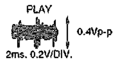
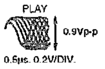
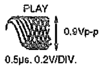
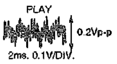
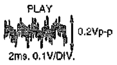
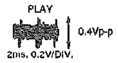
Table 1

FL display	Symptom	Cause
H-15	When CD tray opens, it closes by itself.	Disc tray "Open" detection switch (S4) fault.
H-16	When CD tray close, it opens by itself.	
F-15	Does not play, even when CD play button is pressed.	Pickup rest position detection switch (S701) fault.
F-16	Traverse pushes up disc tray.	Up position detection switch (S3) fault.
F-26	Does not move even when " ▶ " (PLAY) button is pressed.	System control or servo processor IC (IC901, IC702) fault.
F-27	Tray keeps moving for a while, or selected tray does not open.	Disc number detection switch (S5) fault.
F-28		Stocker position detection, or play position detection switch (S1, S2) fault
F-75	NO DISC is displayed and unit does not play, even when a CD is loaded.	CD circuit power supply problem.

- **Error code based troubleshooting**

※ The unit is satisfactory if the error code is "**E-00**" of "**E-02**".
※ Before testing, check that the test disc is free of scratches and optical pickup is clean.

Table 2

FL error code display	Symptom	Probable cause	Signal to check		Normal voltage and waveform values	
			Signal name	Location	PLAY	STOP
E-01	Focus and tracking offset adjustments not completed in the specified time period.	1. Clocks X1 and X2, power supply VDD and reset/RST, all on IC702. 2. MDATA, MCLK, MLD, and SENSE signals to/from mechanism controller.	MDATA	IC702 ⑧ pin		4.4 V
			MCLK	IC702 ⑦ pin		4.3 V
			MLD	IC702 ⑨ pin		4.4 V
			SENSE	IC702 ⑩ pin	——	——
			/RST	IC702 ⑱ pin	4.9 V	4.9 V
			X1	IC702 (58) pin		
			X2	IC702 (59) pin		
E-03 E-05 E-07 E-09 E-0B E-0D E-0F	Disc play unstable.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuits (check waveforms, voltages, and part values.) 3. Spindle driver circuit. 4. Optical pickup.	F E	IC702 ㉜ pin		2.5 V
			T E	IC702 ㉝ pin		2.5 V
			FOD	IC702 ㉘ pin	2.5 V	2.5 V
			TRD	IC702 ㉗ pin	2.5 V	2.5 V
			KICK	IC702 ㉖ pin	2.5 V	2.5 V
			/FLOCK	IC702 ⑪ pin	——	——
			/RF DET	IC702 ㊳ pin	0 V	5.0 V
			R F	TJ701		1.7 V
			STAT	IC702 ⑰ pin	0.7 V	0 V
E-04 E-06 E-0C E-0E	Best "Eye" (PD Balance) adjustment not completed in the specified time period.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuit (check waveforms, voltages, and part values.) 3. Optical pickup.	FBAL	IC702 ㉚ pin	2.5V	2.5 V
			R F	IC701		1.7 V
			F E	IC702 ㉜ pin		2.5 V
			/TLOCK	IC702 ⑫ pin	——	——
			OFT	IC702 ㊱ pin	0 V	0 V
E-08 E-0A	Focus or Tracking gain adjustment not completed in the specified time period.	1. Scratches or contaminants on disc surface. 2. Focus and Tracking servo circuit (check waveforms, voltages, and part values.) 3. Optical pickup.	F E	IC702 ㉜ pin		2.5 V
			T E	IC702 ㉝ pin		2.5 V
			/TLOCK	IC702 ⑫ pin	——	——
			O F T	IC702 ㊱ pin	0 V	0 V

■Schematic Diagram

Page
A SERVO CIRCUIT 20, 21
B SWITCH CIRCUIT 22
C SWITCH (S2, S3) CIRCUIT 22

Page
D LOADING MOTOR CIRCUIT 22
E OPERATION CIRCUIT 22
F MAIN CIRCUIT 22, 23

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S1** : Stocker position detect switch in " OFF " position
- **S2** : Play position detect switch in " OFF " position
- **S3** : Up position detect switch in " OFF " position
- **S4** : Tray open detect switch in " OFF " position
- **S5** : Disc number detect switch in " OFF " position
- **S601** : Disc select switch (DISC 5)
- **S602** : Disc select switch (DISC 4)
- **S603** : Disc select switch (DISC 3)
- **S604** : Disc select switch (DISC 2)
- **S605** : Disc select switch (DISC 1)
- **S606** : Disc check switch (⏏ NEXT OPEN)
- **S607** : Repeat switch (REPEAT)
- **S608** : AI edit switch (AI EDIT)
- **S609** : Random play switch (RANDOM)
- **S610** : R. Skip/Search switch (⏮/◀◀)
- **S611** : Stop switch (■)
- **S612** : Play switch (▶, SELECT)
- **S613** : F. Skip/Search switch (▶▶/ ⏭)
- **S614** : Pause switch (❚❚)
- **S615** : Disc tray open/close switch (⏏ OPEN/CLOSE)
- **S701** : Rest switch in " OFF " position

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

  No mark : CD STOP
  ( ) : CD PLAY [1kHz, L + R, 0 dB]

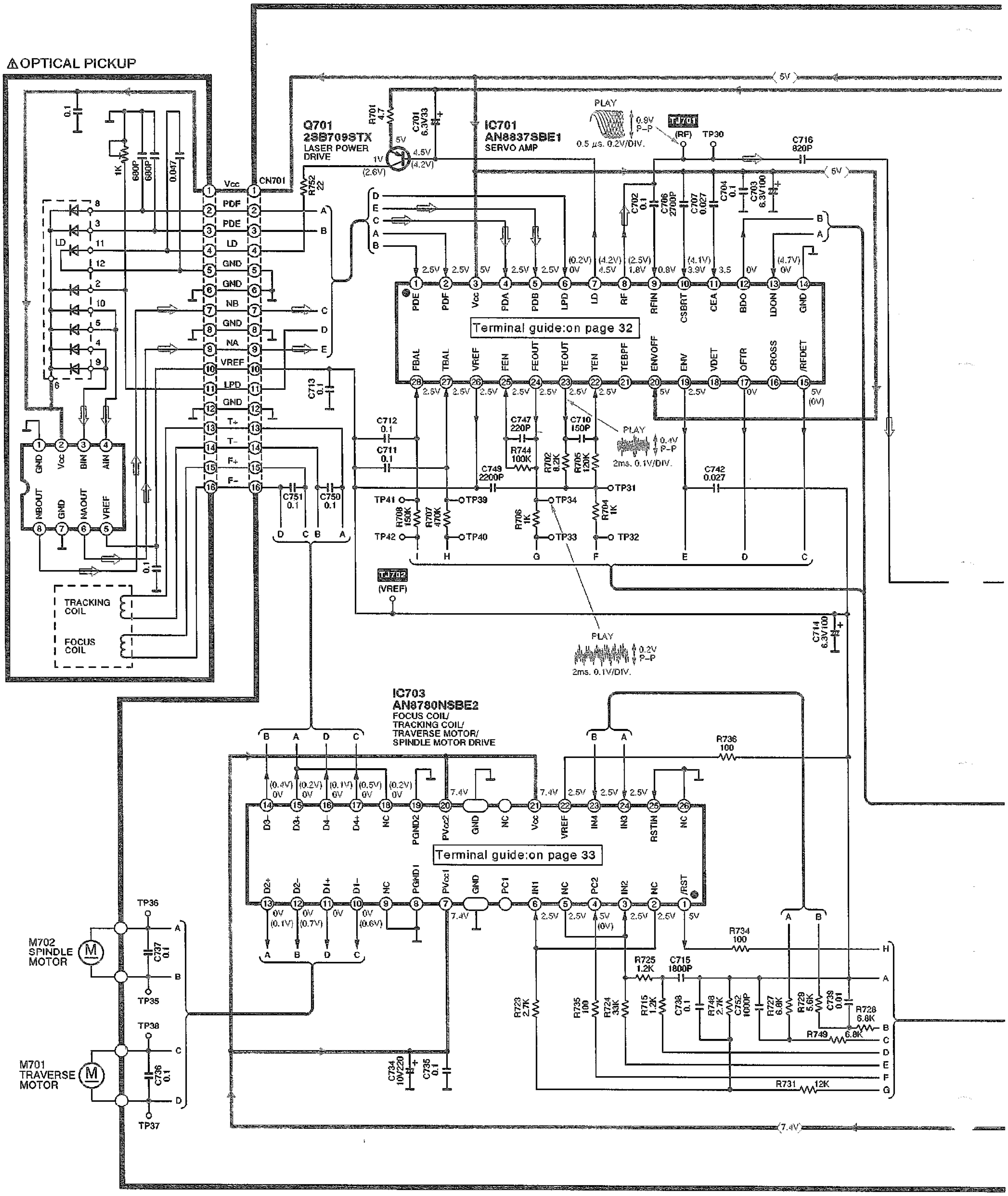
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

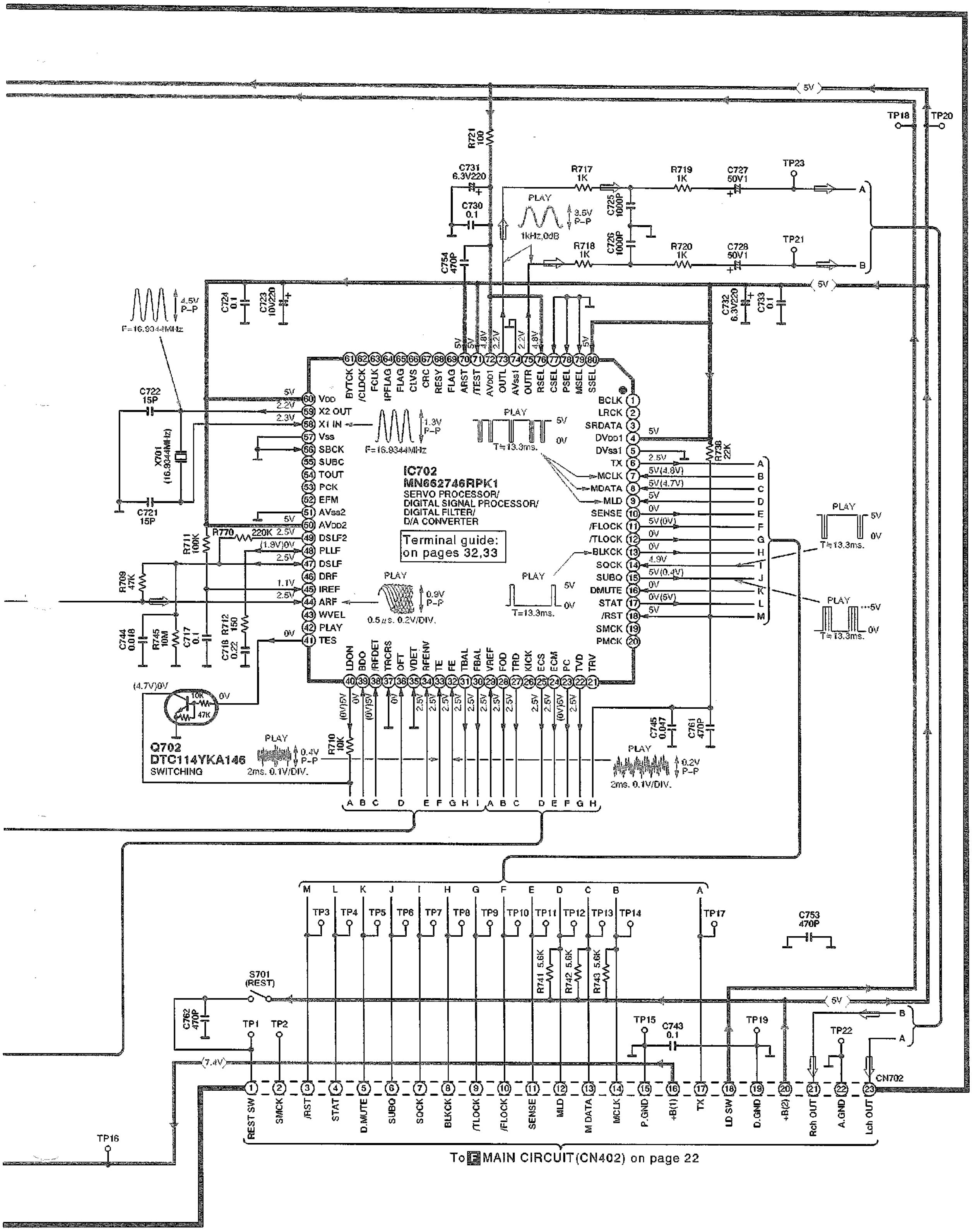
- **Voltage and signal line**

  ➡ : Positive voltage line
  ⇨ : CD signal line

A CD SERVO CIRCUIT(P.C.Board:on page 24)


⚠OPTICAL PICKUP
Q701
2SB709STX
LASER POWER DRIVE
IC701
AN8837SBE1
SERVO AMP
CN701
R701 4.7
C701 6.3V33
R752 22
PLAY
0.9V P-P
0.5 μs. 0.2V/DIV.
TJ701
(RF)
TP30
C716 820P
5V
C702 0.1
C706 2700P
C707 0.027
C704 0.1
C703 6.3V100
Vcc
PDF
PDE
LD
GND
NB
NA
VREF
LPD
T+
T-
F+
F-
GND
Vcc
BIN
AIN
NBOUT
GND
NAOUT
VREF
1K
680P
680P
0.047
0.1
TRACKING COIL
FOCUS COIL
PDE
PDF
Vcc
PDA
PDB
LPD
LD
RF
RFIN
CSBRT
CEA
BDO
LDON
GND
Terminal guide:on page 32
FBAL
TBAL
VREF
FEN
FEOUT
TEOUT
TEN
TEBPF
ENVOFF
ENV
VDET
OFTR
CROSS
/RFDET
C713 0.1
C712 0.1
C711 0.1
C747 220P
C710 150P
R744 100K
R702 8.2K
R705 120K
C749 2200P
PLAY
0.4V P-P
2ms. 0.1V/DIV.
C742 0.027
TP31
TP41
TP39
TP34
TP42
TP40
TP33
TP32
R708 150K
R707 470K
R706 1K
R704 1K
C751 0.1
C750 0.1
TJ702
(VREF)
C714 6.3V100
PLAY
0.2V P-P
2ms. 0.1V/DIV.
IC703
AN8780NSBE2
FOCUS COIL/ TRACKING COIL/ TRAVERSE MOTOR/ SPINDLE MOTOR DRIVE
R736 100
D3-
D3+
D4-
D4+
NC
PGND2
PVcc2
GND
NC
Vcc
VREF
IN4
IN3
RSTIN
NC
Terminal guide:on page 33
D2+
D2-
D1+
D1-
NC
PGND1
PVcc1
GND
PC1
IN1
NC
PC2
IN2
NC
/RST
7.4V
TP36
M702 SPINDLE MOTOR
C737 0.1
TP35
TP38
M701 TRAVERSE MOTOR
C736 0.1
TP37
R734 100
R725 1.2K
C715 1800P
R723 2.7K
R735 100
R724 33K
R715 1.2K
C738 0.1
R748 2.7K
C752 1000P
R727 6.8K
R729 5.6K
C739 0.01
R728 6.8K
R749 6.8K
R731 12K
C734 10V220
C735 0.1
(7.4V)

➡ : Positive voltage line ⇨ : CD signal line


IC702
MN662746RPK1
SERVO PROCESSOR/
DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER/
D/A CONVERTER
Terminal guide:
on pages 32,33
Q702
DTC114YKA146
SWITCHING
X701
(16.9344MHz)
F=16.9344MHz
4.5V P-P
1.3V P-P
PLAY
3.5V P-P
1kHz,0dB
T≒13.3ms.
0.9V P-P
0.5μs. 0.2V/DIV.
0.4V P-P
2ms. 0.1V/DIV.
0.2V P-P
C722 15P
C721 15P
C724 0.1
C723 10V220
C731 6.3V220
C730 0.1
C754 470P
C725 1000P
C726 1000P
C727 50V1
C728 50V1
C732 6.3V220
C733 0.1
C744 0.018
C717 0.1
C718 0.22
C745 0.047
C761 470P
C753 470P
C762 470P
C743 0.1
R721 100
R717 1K
R718 1K
R719 1K
R720 1K
R738 22K
R711 100K
R770 220K
R709 47K
R745 10M
R712 150
R710 10K
R741 5.6K
R742 5.6K
R743 5.6K
10K
47K
S701 (REST)
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP15
TP16
TP17
TP18
TP19
TP20
TP21
TP22
TP23
CN702
5V
7.4V
60 VDD
59 X2 OUT
58 X1 IN
57 Vss
56 SBCK
55 SUBC
54 TOUT
53 PCK
52 EFM
51 AVss2
50 AVDD2
49 DSLF2
48 PLLF
47 DSLF
46 DRF
45 IREF
44 ARF
43 WVEL
42 PLAY
41 TES
61 BYTCK
62 /CLDCK
63 FCLK
64 IPFLAG
65 FLAG
66 CLVS
67 CRC
68 RESY
69 FLAG
70 ARST
71 /TEST
72 AVDD1
73 OUTL
74 AVss1
75 OUTR
76 RSEL
77 CSEL
78 PSEL
79 MSEL
80 SSEL
1 BCLK
2 LRCK
3 SRDATA
4 DVDD1
5 DVss1
6 TX
7 MCLK
8 MDATA
9 MLD
10 SENSE
11 /FLOCK
12 /TLOCK
13 BLKCK
14 SOCK
15 SUBQ
16 DMUTE
17 STAT
18 /RST
19 SMCK
20 PMCK
40 LDON
39 BDO
38 /RFDET
37 TRCRS
36 OFT
35 VDET
34 RFENV
33 TE
32 FE
31 TBAL
30 FBAL
29 VREF
28 FOD
27 TRD
26 KICK
25 ECS
24 ECM
23 PC
22 TVD
21 TRV
1 REST SW
2 SMCK
3 /RST
4 STAT
5 D.MUTE
6 SUBQ
7 SOCK
8 BLKCK
9 /TLOCK
10 /FLOCK
11 SENSE
12 MLD
13 M DATA
14 MCLK
15 P.GND
16 +B(1)
17 TX
18 LD SW
19 D.GND
20 +B(2)
21 Rch OUT
22 A.GND
23 Lch OUT
To F MAIN CIRCUIT(CN402) on page 22

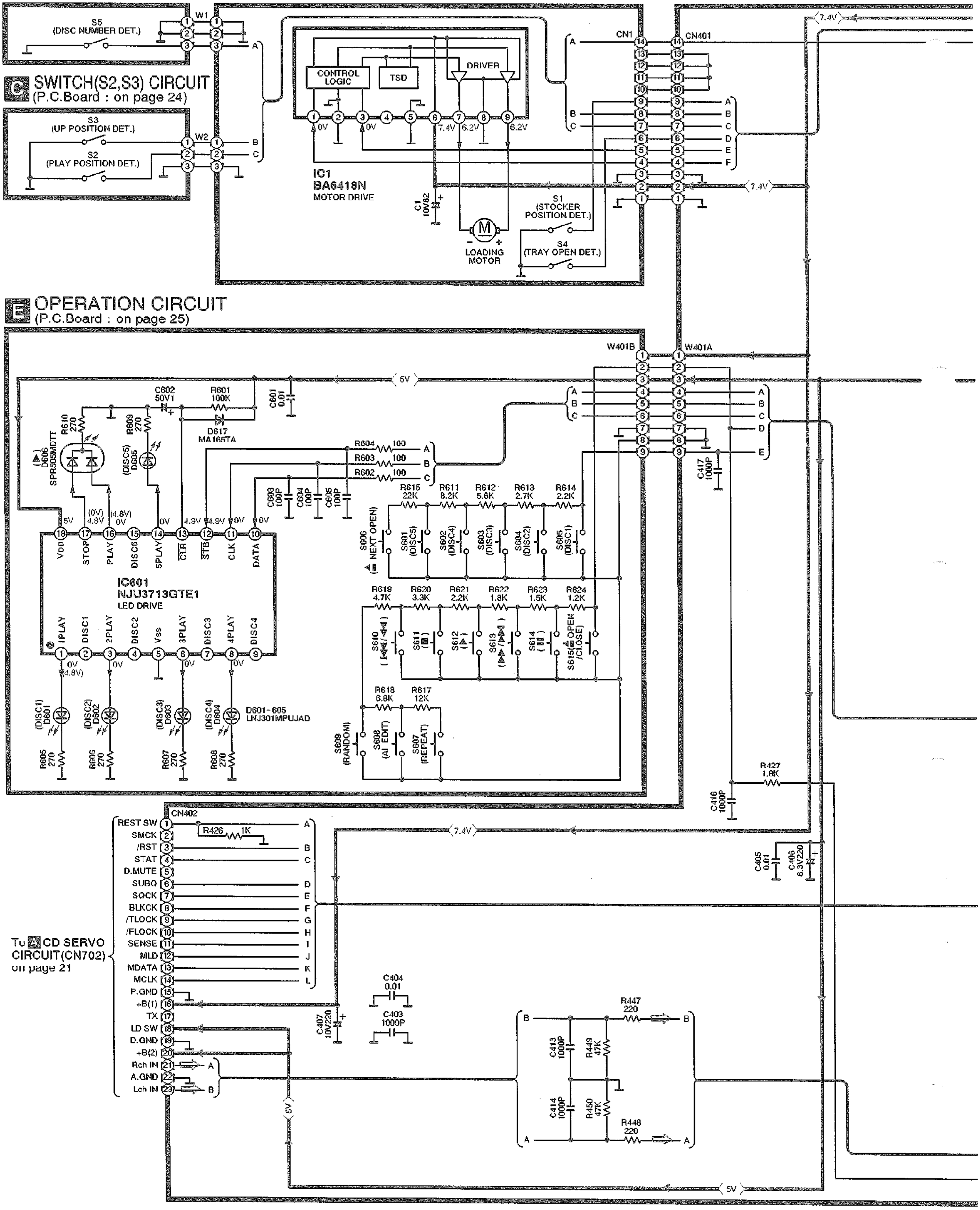
B SWITCH CIRCUIT
(P.C.Board : on page 24)

D LOADING MOTOR CIRCUIT
(P.C.Board : on page 24)

F MAIN CIRCUIT
(P.C.Board : on page 25)

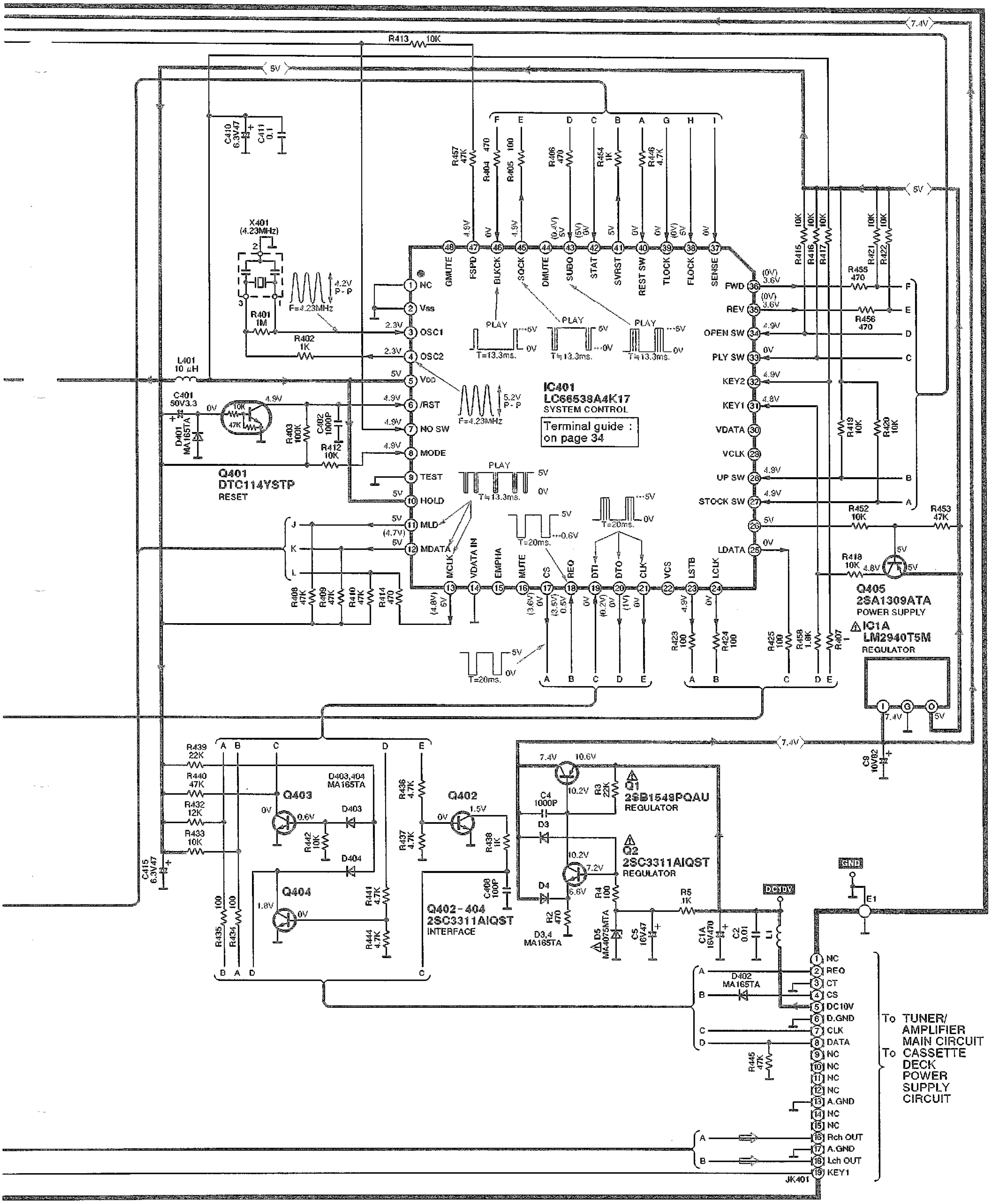
C SWITCH(S2,S3) CIRCUIT
(P.C.Board : on page 24)

E OPERATION CIRCUIT
(P.C.Board : on page 25)


S5
(DISC NUMBER DET.)
W1
S3
(UP POSITION DET.)
W2
S2
(PLAY POSITION DET.)
CONTROL LOGIC
TSD
DRIVER
IC1
BA6418N
MOTOR DRIVE
C1
10V82
LOADING MOTOR
M
S1
(STOCKER POSITION DET.)
S4
(TRAY OPEN DET.)
CN1
CN401
7.4V
0V
6.2V
W401B
W401A
5V
C602
50V1
R601
100K
C601
0.01
D617
MA165TA
R610
270
R609
270
D606
SPR505MDTT
(DISC5)
D605
R604 100
R603 100
R602 100
C603 100P
C604 100P
C605 100P
R615 22K
R611 8.2K
R612 5.6K
R613 2.7K
R614 2.2K
S606 (NEXT OPEN)
S601 (DISC5)
S602 (DISC4)
S603 (DISC3)
S604 (DISC2)
S605 (DISC1)
VDD
STOP
PLAY
DISC5
5PLAY
CLR
STB
CLK
DATA
IC601
NJU3713GTE1
LED DRIVE
1PLAY
DISC1
2PLAY
DISC2
Vss
3PLAY
DISC3
4PLAY
DISC4
R619 4.7K
R620 3.3K
R621 2.2K
R622 1.8K
R623 1.5K
R624 1.2K
S610
S611
S612
S613
S614
S615 OPEN /CLOSE
R618 6.8K
R617 12K
S609 (RANDOM)
S608 (AI EDIT)
S607 (REPEAT)
(DISC1) D601
(DISC2) D602
(DISC3) D603
(DISC4) D604
D601-605
LNJ301MPUJAD
R605 270
R606 270
R607 270
R608 270
C417
1000P
R427
1.8K
C416
1000P
CN402
REST SW
SMCK
/RST
STAT
D.MUTE
SUBQ
SOCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
MDATA
MCLK
P.GND
+B(1)
TX
LD SW
D.GND
+B(2)
Rch IN
A.GND
Lch IN
R426 1K
To A CD SERVO CIRCUIT(CN702) on page 21
C404
0.01
C403
1000P
C407
10V220
C405
0.01
C406
6.3V220
R447
220
R448
220
C413
1000P
R449
47K
C414
1000P
R450
47K

: Positive voltage line

: CD signal line

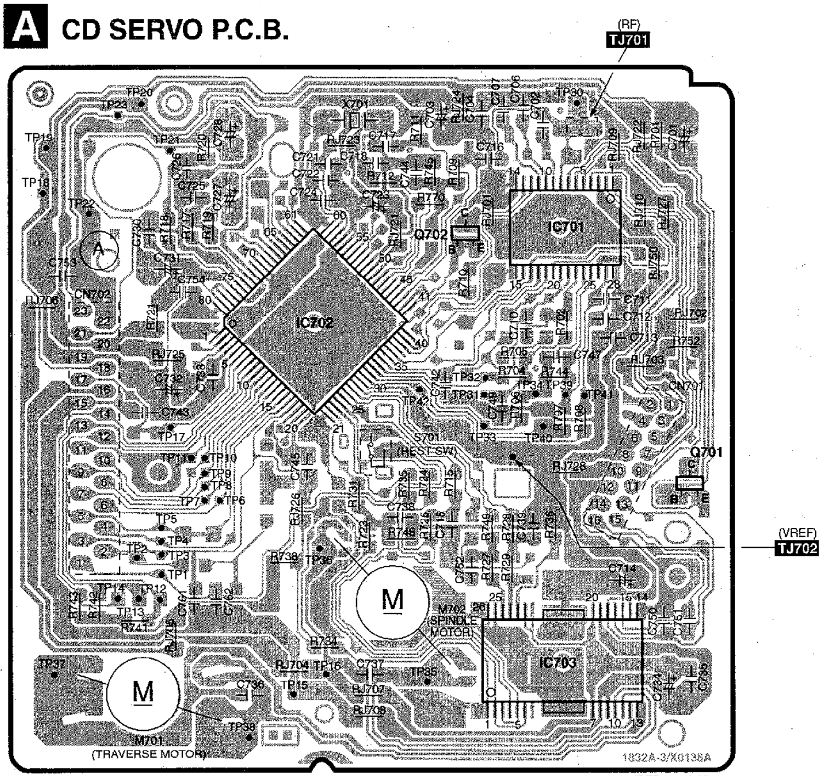

R413 10K
5V
7.4V
C410 6.3V47
C411 0.1
F E D C B A G H I
R457 47K
R404 470
R405 100
R406 470
R454 1K
R446 4.7K
X401 (4.23MHz)
4.2V P-P
F=4.23MHz
R401 1M
R402 1K
L401 10 μH
C401 50V3.3
D401 MA165TA
Q401 DTC114YSTP RESET
R403 100K
C402 1000P
R412 10K
1 NC
2 Vss
3 OSC1
4 OSC2
5 VDD
6 /RST
7 NO SW
8 MODE
9 TEST
10 HOLD
11 MLD
12 MDATA
13 MCLK
14 VDATA IN
15 EMPHA
16 MUTE
17 CS
18 REQ
19 DTI
20 DTO
21 CLK
22 VCS
23 LSTB
24 LCLK
25 LDATA
27 STOCK SW
28 UP SW
29 VCLK
30 VDATA
31 KEY1
32 KEY2
33 PLY SW
34 OPEN SW
35 REV
36 FWD
37 SENSE
38 FLOCK
39 TLOCK
40 REST SW
41 SVRST
42 STAT
43 SUBQ
44 DMUTE
45 SQCK
46 BLKCK
47 FSPD
48 GMUTE
IC401 LC66538A4K17 SYSTEM CONTROL
Terminal guide : on page 34
PLAY
T=13.3ms.
T≒13.3ms.
5.2V P-P
F=4.23MHz
T=20ms.
R408 47K
R409 47K
R410 47K
R414 470
R423 100
R424 100
R425 100
R458 1.8K
R407
R415 10K
R416 10K
R417 10K
R421 10K
R422 10K
R455 470
R456 470
R419 10K
R420 10K
R452 10K
R453 47K
R418 10K
Q405 2SA1309ATA POWER SUPPLY
IC1A LM2940T5M REGULATOR
C9 10V82
R439 22K
R440 47K
R432 12K
R433 10K
C415 6.3V47
D403,404 MA165TA
Q403
Q404
D403
D404
R442 10K
R436 4.7K
R437 4.7K
Q402
R438 1K
C403 100P
R441 4.7K
R444 4.7K
R435 100
R434 100
Q402-404 2SC3311AIQST INTERFACE
Q1 2SB1548PQAU REGULATOR
Q2 2SC3311AIQST REGULATOR
R3 22K
C4 1000P
D3
D4
R2 470
R4 100
D3,4 MA165TA
D5 MA4075MTA
C5 16V47
R5 1K
C1A 16V470
C2 0.01
L1
DC10V
GND
E1
D402 MA165TA
R445 47K
1 NC
2 REQ
3 CT
4 CS
5 DC10V
6 D.GND
7 CLK
8 DATA
9 NC
10 NC
11 NC
12 NC
13 A.GND
14 NC
15 NC
16 Rch OUT
17 A.GND
18 Lch OUT
19 KEY1
JK401
To TUNER/ AMPLIFIER MAIN CIRCUIT
To CASSETTE DECK POWER SUPPLY CIRCUIT

■ Printed Circuit Board Diagram

Note:

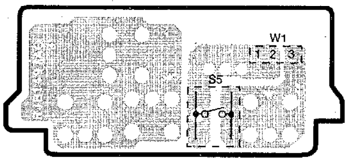
- This printed circuit board diagram may be modified at any time with the development of new technology.

A CD SERVO P.C.B.


(RF)
TJ701
(VREF)
TJ702
IC701
IC702
IC703
Q701
Q702
CN701
CN702
S701
(REST SW)
M
M702
(SPINDLE MOTOR)
M
M701
(TRAVERSE MOTOR)
1832A-3/X0138A

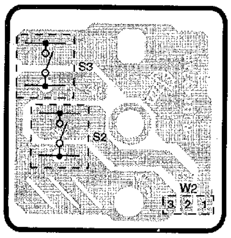
(REP2557A-N)

B SWITCH P.C.B.



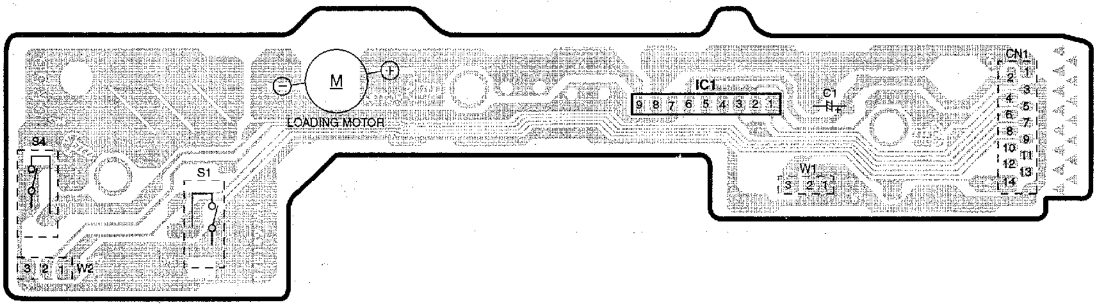
(REP2182A-N)

C SWITCH (S2,S3) P.C.B.



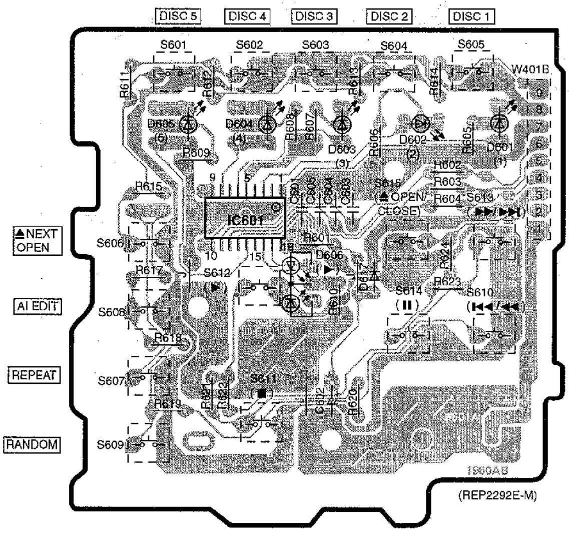
(REP2182A-N)

D LOADING MOTOR P.C.B.

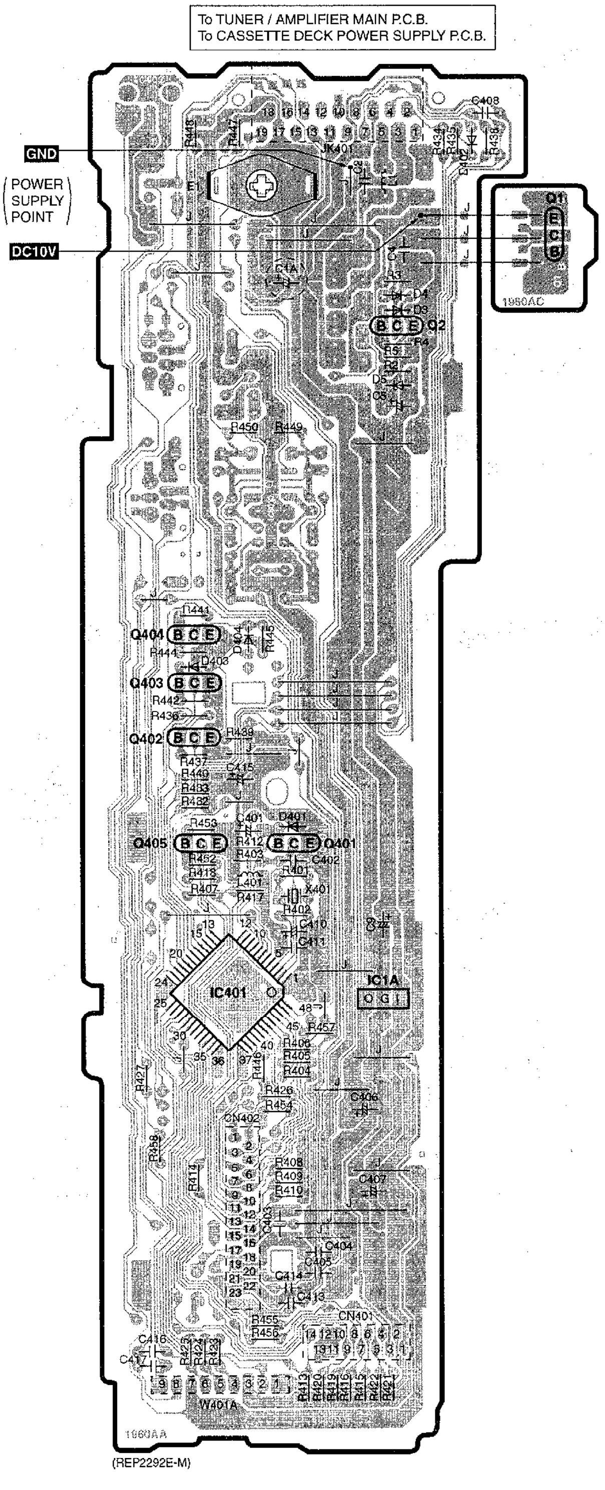

M
LOADING MOTOR
IC1
9 8 7 6 5 4 3 2 1
C1
CN1
S4
S1
W1
3 2 1
3 2 1 W2

(REP2182A-N)

E OPERATION P.C.B.

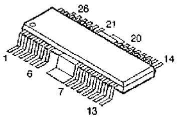

DISC 5
DISC 4
DISC 3
DISC 2
DISC 1
S601
S602
S603
S604
S605
W401B
R611
R612
R613
R614
D605 (5)
D604 (4)
D603 (3)
D602 (2)
D601 (1)
R608
R607
R606
R605
R609
R615
IC601
C601
C605
C604
C603
S615 ▲OPEN/CLOSE
R602
R603
R604
S613 (▶▶/▶▶|)
▲NEXT OPEN
S606
R601
D606
R617
S612
D607
D610
R624
R623
S614 (II)
S610 (|◀◀/◀◀)
AI EDIT
S608
R618
REPEAT
S607
R619
R621
R622
S611 (■)
C602
R620
RANDOM
S609
1960AB
(REP2292E-M)

F MAIN P.C.B.

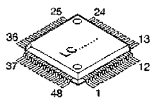

To TUNER / AMPLIFIER MAIN P.C.B.
To CASSETTE DECK POWER SUPPLY P.C.B.
GND
POWER SUPPLY POINT
DC10V
E1
R448
R447
JK401
C408
R434
R435
D402
R438
Q1
E
C
B
1960AC
C1A
R3
D4
D3
B C E Q2
R4
R5
D5
C5
R450
R449
R441
Q404 B C E
R444
D404
R445
D403
Q403 B C E
R442
R436
Q402 B C E
R439
R437
C415
R440
R403
R432
R453
C401
D401
Q405 B C E
R412
B C E Q401
R452
R403
C402
R418
R401
R407
L401
R417
X401
R402
C410
C411
IC401
IC1A
O G I
R457
R406
R405
R404
R446
R427
R426
R454
C406
CN402
R458
R414
R408
R409
R410
C407
C403
C404
C405
C414
C413
CN401
R455
R456
C416
C417
R423
R422
R421
R413
R420
R419
R416
R415
R424
R425
W401A
1960AA
(REP2292E-M)

Type Illustration of IC's, Transistors and Diodes

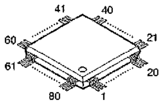
AN8780NSBE2


26
21
20
14
1
6
7
13

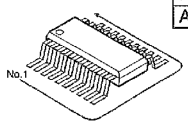
LC66538A4K17


25
24
36
13
37
12
48
1

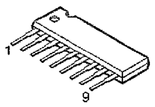
MN662746RPK1


41
40
60
21
61
20
80
1

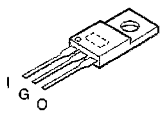
NJU3713GTE1	18PIN
AN8837SBE1	28PIN



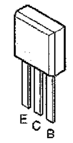
BA6418N



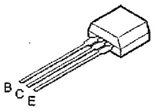
LM2940T5M



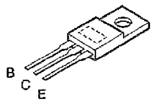
2SA1309ATA
2SC3311AIQST



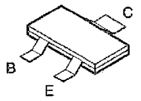
DTC114YSTP



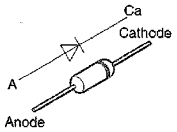
2SB1548PQAU



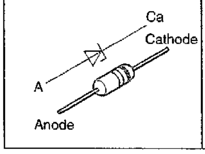
2SB709STX
DTC114YKA146



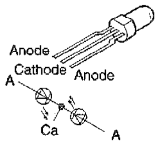
MA165TA


Ca
Cathode
A
Anode

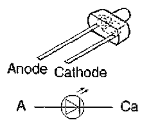
MA4075MTA


Ca
Cathode
A
Anode

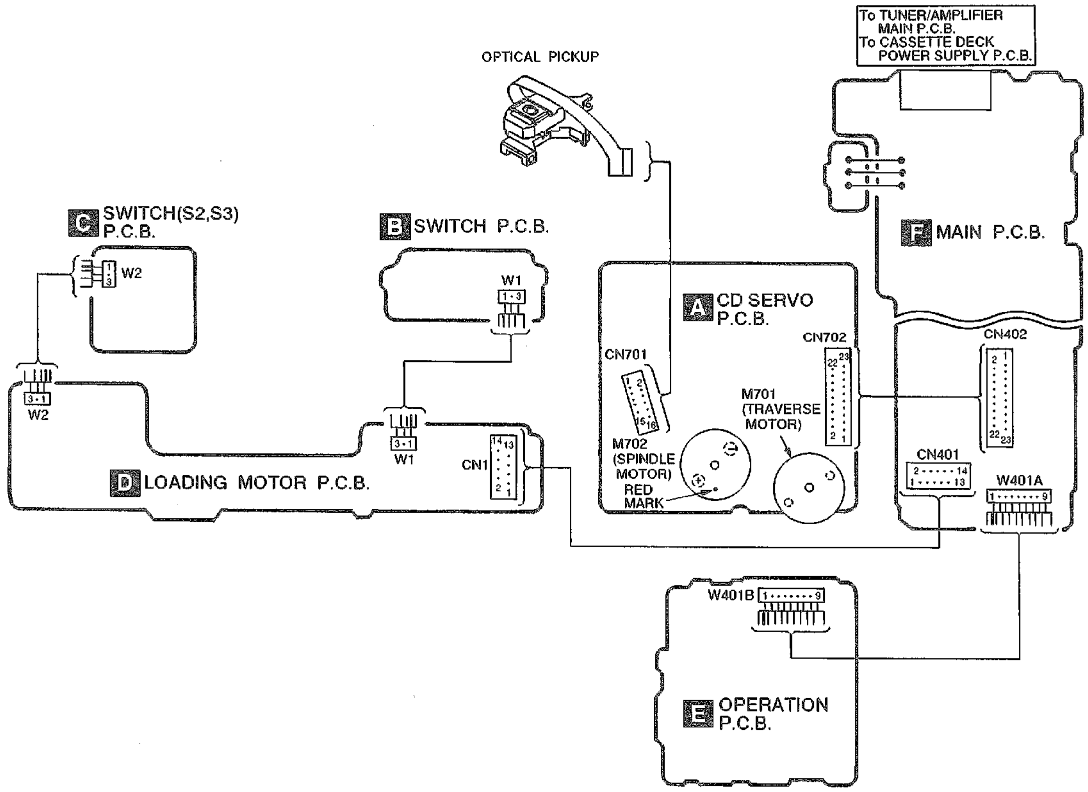
SPR505MDTT


Anode
Cathode
Anode
A
Ca
A

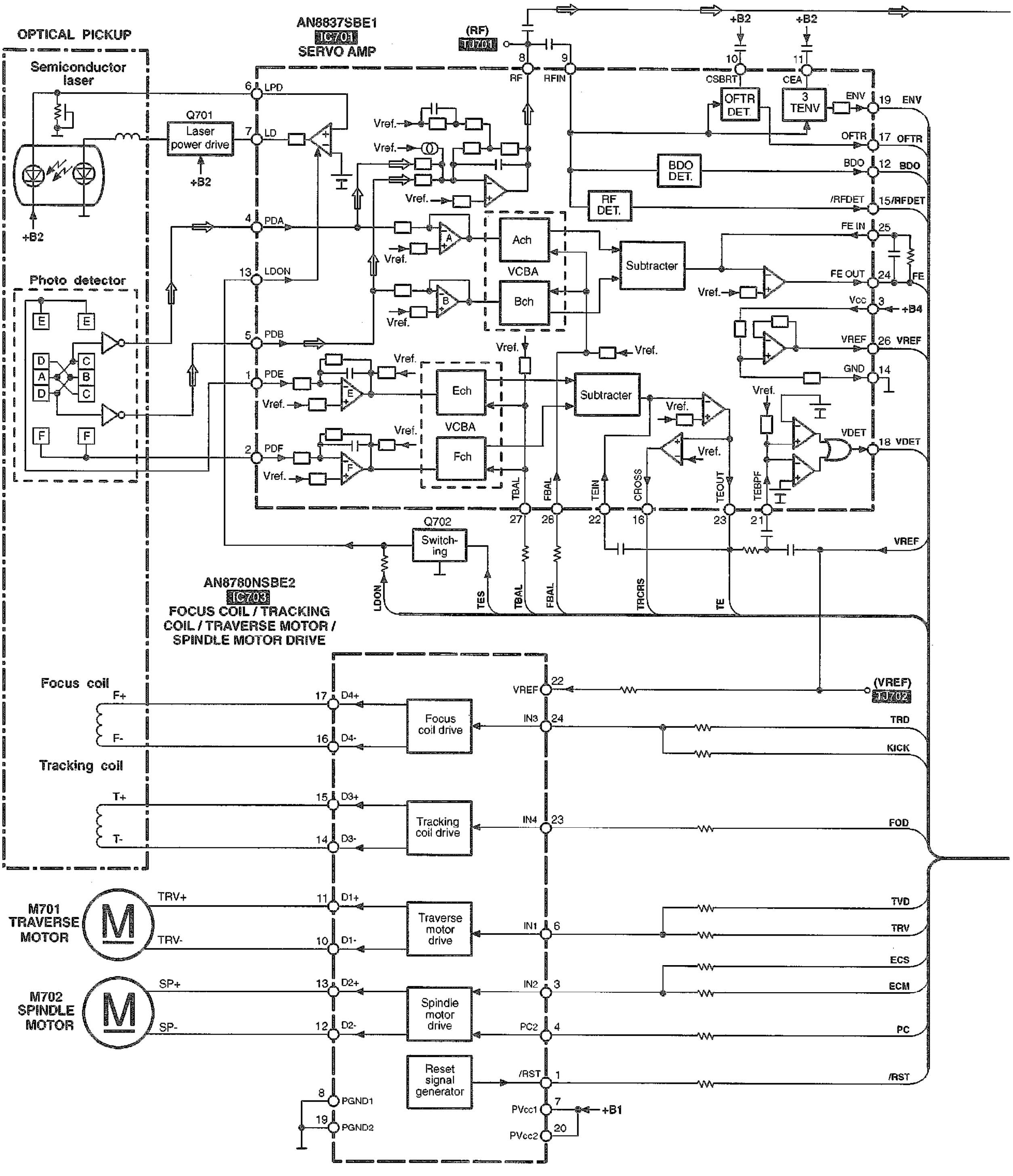
LNJ301MPUJAD

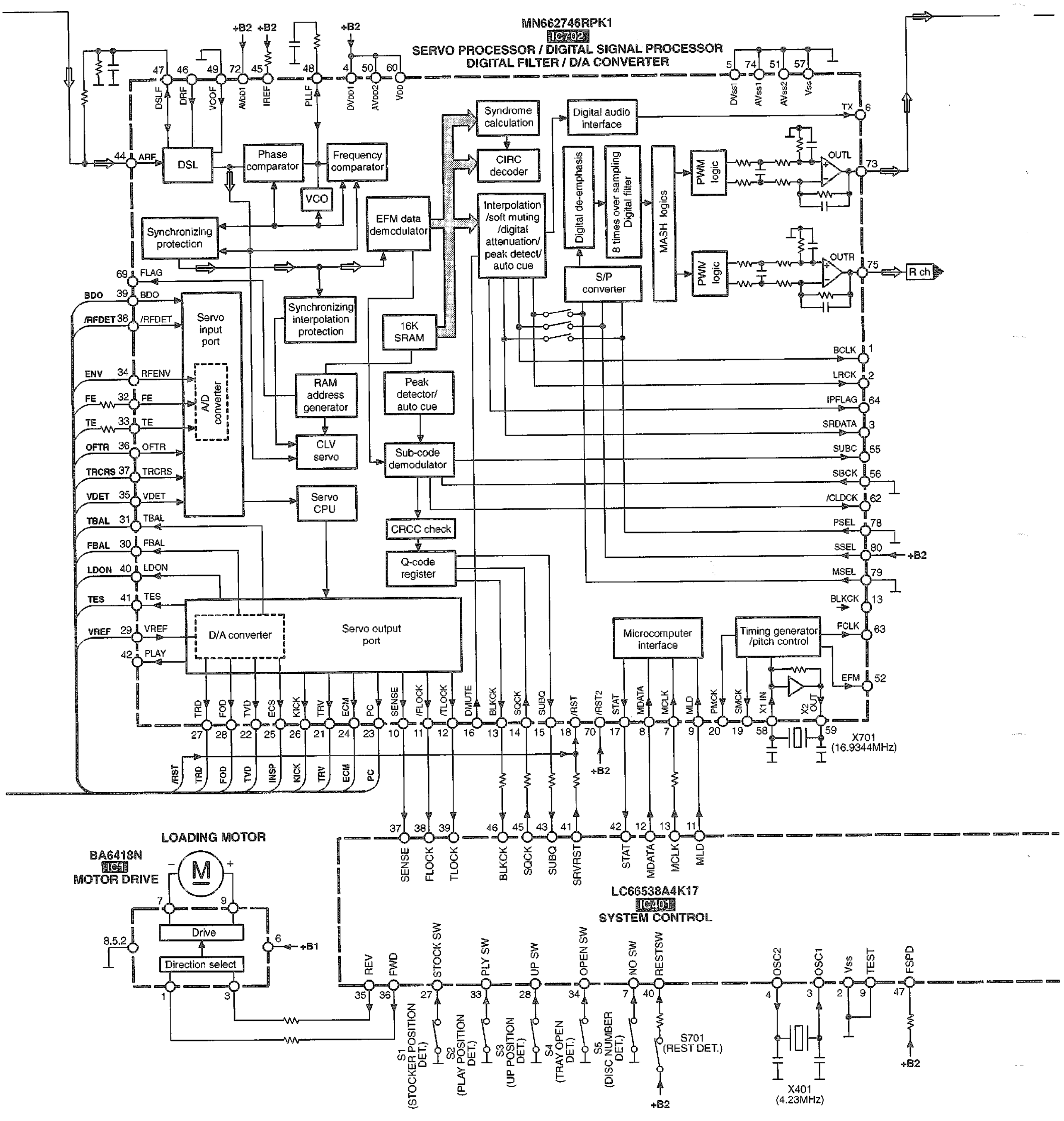

Anode
Cathode
A
Ca

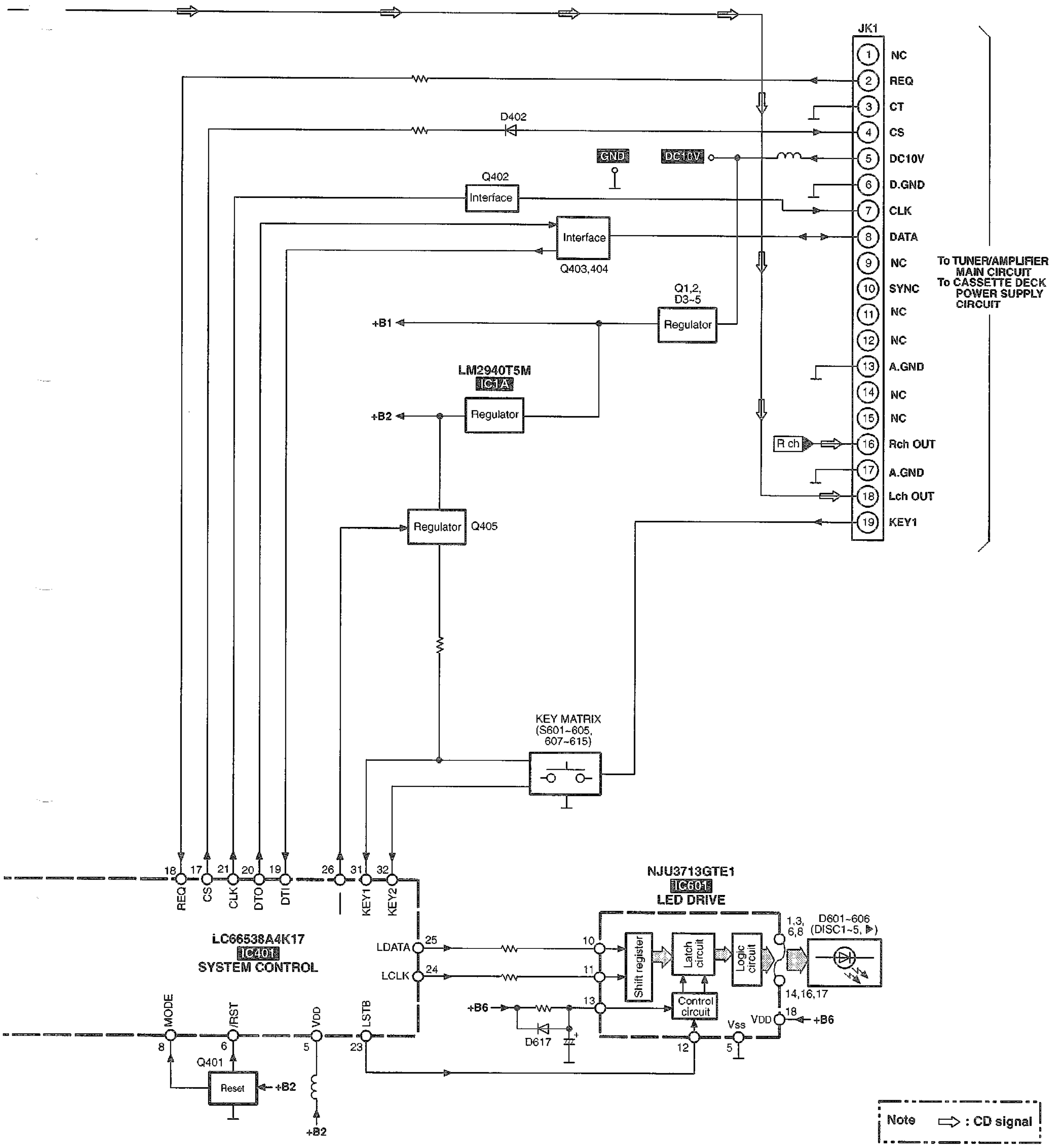
Wiring Connection Diagram


To TUNER/AMPLIFIER MAIN P.C.B.
To CASSETTE DECK POWER SUPPLY P.C.B.
OPTICAL PICKUP
C SWITCH(S2,S3) P.C.B.
W2
B SWITCH P.C.B.
W1
F MAIN P.C.B.
A CD SERVO P.C.B.
CN702
CN701
M701 (TRAVERSE MOTOR)
M702 (SPINDLE MOTOR)
RED MARK
CN402
CN401
W401A
W2
W1
CN1
D LOADING MOTOR P.C.B.
W401B
E OPERATION P.C.B.

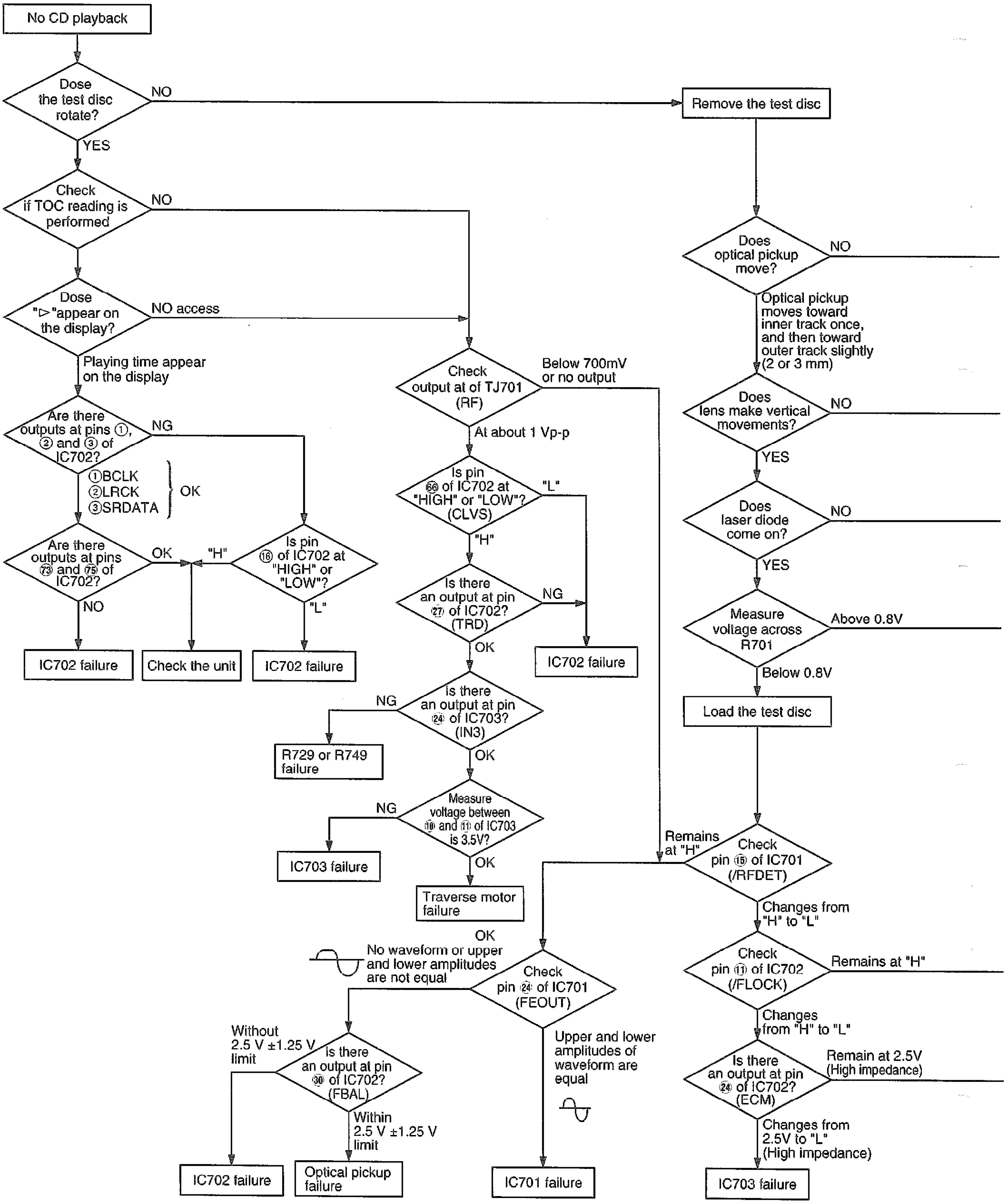
■ Block Diagram

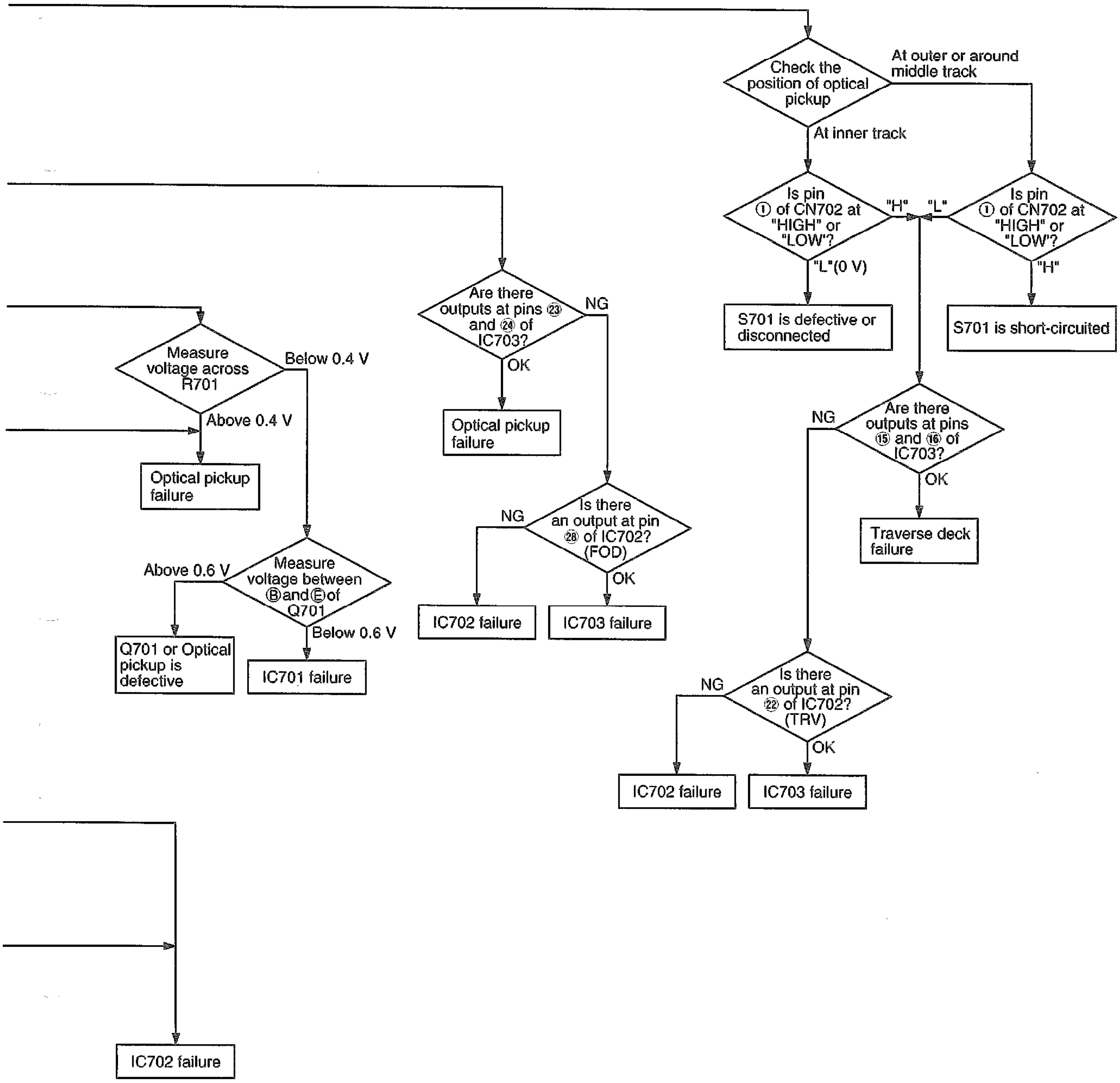

OPTICAL PICKUP
Semiconductor laser
+B2
Photo detector
E
D
A
D
C
B
C
F
Q701
Laser power drive
+B2
AN8837SBE1
IC701
SERVO AMP
(RF)
TJ701
LPD
LD
PDA
LDON
PDB
PDE
PDF
RF
RFIN
CSBRT
CEA
OFTR DET.
3 TENV
ENV
19 ENV
OFTR
17 OFTR
BDO DET.
BDO
12 BDO
RF DET.
/RFDET
15/RFDET
FE IN
25
Ach
VCBA
Bch
Subtracter
FE OUT
24
FE
Vcc
3
+B4
VREF
26 VREF
GND
14
Ech
VCBA
Fch
Subtracter
VDET
18 VDET
Vref.
TBAL
FBAL
TEIN
CROSS
TEOUT
TEBPF
27
28
22
16
23
21
Q702
Switch-ing
VREF
LDON
TES
TBAL
FBAL
TRCRS
TE
AN8780NSBE2
IC703
FOCUS COIL / TRACKING COIL / TRAVERSE MOTOR / SPINDLE MOTOR DRIVE
Focus coil
F+
F-
Tracking coil
T+
T-
M701 TRAVERSE MOTOR
TRV+
TRV-
M702 SPINDLE MOTOR
SP+
SP-
17 D4+
16 D4-
15 D3+
14 D3-
11 D1+
10 D1-
13 D2+
12 D2-
8 PGND1
19 PGND2
Focus coil drive
Tracking coil drive
Traverse motor drive
Spindle motor drive
Reset signal generator
VREF 22
IN3 24
IN4 23
IN1 6
IN2 3
PC2 4
/RST 1
PVcc1 7
PVcc2 20
+B1
(VREF)
TJ702
TRD
KICK
FOD
TVD
TRV
ECS
ECM
PC
/RST


MN662746RPK1
IC702
SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR
DIGITAL FILTER / D/A CONVERTER
+B2
DSLF
DRF
VCOF
AVDD1
IREF
PLLF
DVDD1
AVDD2
VDD
DVss1
AVss1
AVss2
Vss
ARF
DSL
Phase comparator
Frequency comparator
VCO
Synchronizing protection
FLAG
EFM data demodulator
Syndrome calculation
CIRC decoder
Interpolation /soft muting /digital attenuation/ peak detect/ auto cue
Digital audio interface
Digital de-emphasis
8 times over sampling Digital filter
MASH logics
PWM logic
OUTL
OUTR
S/P converter
Synchronizing interpolation protection
16K SRAM
TX
R ch
BDO
/RFDET
ENV
RFENV
FE
TE
OFTR
TRCRS
VDET
TBAL
FBAL
LDON
TES
VREF
PLAY
Servo input port
A/D converter
RAM address generator
CLV servo
Servo CPU
Peak detector/ auto cue
Sub-code demodulator
CRCC check
Q-code register
D/A converter
Servo output port
BCLK
LRCK
IPFLAG
SRDATA
SUBC
SBCK
/CLDCK
PSEL
SSEL
MSEL
BLKCK
FCLK
EFM
Microcomputer interface
Timing generator /pitch control
TRD
FOD
TVD
ECS
KICK
TRV
ECM
PC
SENSE
/FLOCK
/TLOCK
DMUTE
BLKCK
SQCK
SUBQ
/RST
/RST2
STAT
MDATA
MCLK
MLD
PMCK
SMCK
X1 IN
X2 OUT
X701 (16.9344MHz)
/RST
INSP
LOADING MOTOR
BA6418N
IC1
MOTOR DRIVE
M
Drive
Direction select
+B1
8,5,2
SENSE
FLOCK
TLOCK
SRVRST
LC66538A4K17
IC401
SYSTEM CONTROL
REV
FWD
STOCK SW
PLY SW
UP SW
OPEN SW
NO SW
RESTSW
OSC2
OSC1
Vss
TEST
FSPD
S1 (STOCKER POSITION DET.)
S2 (PLAY POSITION DET.)
S3 (UP POSITION DET.)
S4 (TRAY OPEN DET.)
S5 (DISC NUMBER DET.)
S701 (REST DET.)
X401 (4.23MHz)


JK1
1 NC
2 REQ
3 CT
4 CS
5 DC10V
6 D.GND
7 CLK
8 DATA
9 NC
10 SYNC
11 NC
12 NC
13 A.GND
14 NC
15 NC
16 Rch OUT
17 A.GND
18 Lch OUT
19 KEY1
To TUNER/AMPLIFIER MAIN CIRCUIT
To CASSETTE DECK POWER SUPPLY CIRCUIT
D402
GND
DC10V
Q402
Interface
Interface
Q403,404
Q1,2, D3~5
Regulator
+B1
LM2940T5M
IC1A
Regulator
+B2
Regulator
Q405
R ch
KEY MATRIX (S601~605, 607~615)
18 REQ
17 CS
21 CLK
20 DTO
19 DTI
26
31 KEY1
32 KEY2
LC66538A4K17
IC401
SYSTEM CONTROL
LDATA 25
LCLK 24
MODE 8
/RST 6
VDD 5
LSTB 23
Q401
Reset
+B2
+B2
NJU3713GTE1
IC601
LED DRIVE
10
11
13
12
Shift register
Latch circuit
Logic circuit
Control circuit
+B6
D617
1,3, 6,8
D601~606 (DISC1~5, ▶)
14,16,17
18
VDD
+B6
Vss
5
Note ⇨ : CD signal

■ Troubleshooting Guide


No CD playback
Dose the test disc rotate?
NO
YES
Remove the test disc
Check if TOC reading is performed
NO
Does optical pickup move?
NO
Optical pickup moves toward inner track once, and then toward outer track slightly (2 or 3 mm)
Dose "▷"appear on the display?
NO access
Playing time appear on the display
Check output at of TJ701 (RF)
Below 700mV or no output
At about 1 Vp-p
Does lens make vertical movements?
NO
YES
Are there outputs at pins ①, ② and ③ of IC702?
NG
①BCLK
②LRCK
③SRDATA
OK
Is pin ⑯ of IC702 at "HIGH" or "LOW"? (CLVS)
"L"
"H"
Does laser diode come on?
NO
YES
Are there outputs at pins ⑬ and ⑮ of IC702?
OK
"H"
Is pin ⑯ of IC702 at "HIGH" or "LOW"?
"L"
NO
Is there an output at pin ㉗ of IC702? (TRD)
NG
OK
Measure voltage across R701
Above 0.8V
Below 0.8V
IC702 failure
Check the unit
IC702 failure
IC702 failure
Load the test disc
Is there an output at pin ㉔ of IC703? (IN3)
NG
OK
R729 or R749 failure
Measure voltage between ⑩ and ⑪ of IC703 is 3.5V?
NG
OK
IC703 failure
Traverse motor failure
Remains at "H"
Check pin ⑮ of IC701 (/RFDET)
Changes from "H" to "L"
OK
No waveform or upper and lower amplitudes are not equal
Check pin ㉔ of IC701 (FEOUT)
Check pin ⑪ of IC702 (/FLOCK)
Remains at "H"
Changes from "H" to "L"
Without 2.5 V ±1.25 V limit
Is there an output at pin ㉚ of IC702? (FBAL)
Within 2.5 V ±1.25 V limit
Upper and lower amplitudes of waveform are equal
Is there an output at pin ㉔ of IC702? (ECM)
Remain at 2.5V (High impedance)
Changes from 2.5V to "L" (High impedance)
IC702 failure
Optical pickup failure
IC701 failure
IC703 failure


Check the position of optical pickup
At outer or around middle track
At inner track
Is pin ① of CN702 at "HIGH" or "LOW"?
"H"
"L"
Is pin ① of CN702 at "HIGH" or "LOW"?
"L"(0 V)
"H"
S701 is defective or disconnected
S701 is short-circuited
Are there outputs at pins ㉓ and ㉔ of IC703?
NG
OK
Optical pickup failure
Measure voltage across R701
Below 0.4 V
Above 0.4 V
Optical pickup failure
Measure voltage between Ⓑand Ⓔof Q701
Above 0.6 V
Below 0.6 V
Q701 or Optical pickup is defective
IC701 failure
Is there an output at pin ㉘ of IC702? (FOD)
NG
OK
IC702 failure
IC703 failure
Are there outputs at pins ⑮ and ⑯ of IC703?
NG
OK
Traverse deck failure
Is there an output at pin ㉒ of IC702? (TRV)
NG
OK
IC702 failure
IC703 failure
IC702 failure

Terminal Function of IC's

• IC701 (AN8837SBE1): Servo Amp.

No.	Terminal Name	I/O	Function
1	PDE	I	Tracking signal input terminal 1 (E ch)
2	PDF	I	Tracking signal input terminal 2 (F ch)
3	VCC	I	Power supply terminal
4	PDA	I	Focus signal input terminal 1 (A ch)
5	PDB	I	Focus signal input terminal 2 (B ch)
6	LPD	I	Laser PD signal
7	LD	O	Laser power auto control output
8	RF	O	RF amp terminal
9	RF IN	I	AGC input terminal
10	CSBRT	I	OFTR capacitor connection terminal
11	CEA	I	HPF-AMP capacitor connection terminal
12	BDO	O	Dropout detection control
13	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
14	GND	—	GND terminal
15	/RFDET	O	RF det. signal output terminal ("L": det.)
16	CROSS	O	Tracking error zero cross output
17	OFTR	O	Off track detection ("H": det.)
18	VDET	O	Oscillation det. signal ("H": det.)
19	ENV	O	Envelope signal output terminal
20	ENVOFF	I	Not used, connected to power supply
21	TEBPF	O	Oscillation detect input terminal
22	TEN	I	Tracking error signal
23	TEOUT	O	Tracking error signal
24	FEOUT	O	Focus error signal
25	FEN	I	Focusing error signal
26	VREF	O	Reference voltage output terminal
27	TBAL	I	Tracking balance adj. input
28	FBAL	I	Focus balance adj. input

• IC702 (MN662746RPK1) : Servo Processor, Digital Signal Processor, Digital Filter, D/A Converter

Pin No.	Terminal Name	I/O	Function
1	BCLK	—	Bit clock output for serial data (Not used, open)
2	LRCK	—	L/R clock signal output (Not used, open)
3	SRDATA	—	Serial data output (Not used, open)
4	DVDD1	—	Power supply input (for digital circuit)
5	DVss1	—	GND (for digital circuit)
6	TX	O	Digital audio interface signal output
7	MCLK	I	Microprocessor command clock signal input (Latches data at first transition)
8	MDATA	I	Microprocessor command data signal input
9	MLD	I	Microprocessor command load signal input
10	SENSE	O	Sense signal output (OFT, FESL, MAGEND, NAJEND, POSAD, SFG)
11	/FLOCK	O	Focus servo feeding signal output ("L": Feed)
12	/TLOCK	O	Tracking servo feeding signal output ("L": Feed)
13	BLKCK	O	Sub-code block clock signal output (fBLKCK = 75 Hz during normal playback)
14	SQCK	I	External clock signal input for sub-code Q resister
15	SUBQ	O	Sub-code Q code output
16	DMUTE	I	Muting input ("H": Mute)
17	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTVP, FCLV, SQCK)
18	/RST	I	Reset signal input
19	SMCK	—	1/2-divided clock signal of crystal oscillating at MSEL = "H" (fSMCK = 8.4672 MHz) 1/4-divided clock signal of crystal oscillating at MSEL = "L" (fSMCK = 4.2336 MHz) (Not used, open)
20	PMCK	—	1/192-divided clock signal of crystal oscillating (fPMCK = 88.2 kHz) (Not used, open)
21	TRV	—	Traverse forced feed output (Not used, open)
22	TVD	O	Traverse drive output
23	PC	O	Spindle motor ON signal output ("L": ON)
24	ECM	O	Spindle motor drive signal output (forced mode output)
25	ECS	O	Spindle motor drive signal output (servo error signal output)
26	KICK	–	Kick pulse output (Not used, open)
27	TRD	O	Tracking drive output
28	FOD	O	Focus drive output
29	VREF	I	D/A (drive) output (TVD, ECS, TRD, FOD, FBAL, TBAL) reference voltage input
30	FBAL	O	Focus balance adjustment output
31	TBAL	O	Tracking balance adjustment output
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input
35	VDET	I	Vibration detection signal input ("H": detection)

Pin No.	Terminal Name	I/O	Function
36	OFT	I	Off-track signal input ("H": off track)
37	TRCRS	I	Track cross signal input
38	/RFDET	I	RF detection signal input ("L": detection)
39	BDO	I	Dropout signal input ("H": Dropout)
40	LDON	O	Laser on signal output ("H": ON)
41	TES	O	Tracking error shunt signal output ("H": shunt)
42	PLAY	—	Play signal out ("H": PLAY) (Not used, open)
43	WVEL	—	Double speed status signal output ("H": Double speed) (Not used, open)
44	ARF	I	RF signal input
45	IREF	I	Reference current input
46	DRF	—	DSL bias (Not used, open)
47	DSLF	I/O	DSL loop filter
48	PLLF	I/O	PLL loop filter
49	DSLF	I/O	DSL loop filter
50	AVDD2	—	Power supply input (for analog circuit)
51	AVss2	—	GND (for analog circuit)
52	EFM	—	EFM signal output (Not used, open)
53	PCK	—	PLL extraction clock output (fPCK= 4.321 MHz during normal playback) (Not used, open)
54	TOUT	—	Phase comparison signal of EFM and PCK signals (Not used, open)
55	SUBC	—	Sub-code serial data output (Not used, open)
56	SBCK	I	Clock input for sub-code serial data
57	Vss	—	GND
58	X1 IN	I	Crystal oscillating circuit input (f = 16.9344 MHz)
59	X2 OUT	O	Crystal oscillating circuit output (f = 16.9344 MHz)
60	VDD	—	Power supply input (for oscillating circuit)
61	BYTCK	—	Byte clock output (Not used, open)
62	/CLDCK	—	Sub-code frame clock signal output (fCLDCK = 7.35 kHz during normal playback)
63	FCLK	—	Crystal frame clock signal output (fFCLK = 7.35 kHz, double = 14.7 kHz) (Not used, open)
64	IPFLAG	—	Interpolation flag output ("H": Interpolation)
65	FLAG	—	Flag output (Not used, open)
66	CLVS	—	Spindle servo phase synchronizing signal output ("H": CLV, "L": rough servo) (Not used, open)
67	CRC	—	Sub-code CRC checked output ("H": OK, "L": NG) (Not used, open)
68	RESY	—	De-emphasis ON signal output ("H": ON) (Not used, open)
69	FLAG	—	Frame re-synchronizing signal output (Not used, open)
70	ARST	I	Reset input through MASH circuit ("L": Reset)
71	/TEST	I	Test input
72	AVDD1	—	Power supply input (for analog circuit)
73	OUTL	O	Left channel audio signal output
74	AVss1	—	GND
75	OUTR	O	Right channel audio signal output
76	RSEL	I	RF signal polarity assignment input (at "H" level: RSEL = "H") (at "L" level: RSEL = "L")
77	CSEL	I	Crystal oscillating frequency designation input ("L": 16.9344 MHz, "H": 33.8688 MHz)
78	PSEL	I	Test terminal (Connected to GND)
79	MSEL	I	SMCK oscillating frequency designation input ("L": 4.2336 MHz, "H": 8.4672 MHz)
80	SSEL	I	SUBQ output mode select ("H": Q-code buffer mode)

• IC703 (AN8780NSBE2): Focus Coil / Tracking Coil / Traverse Motor / Spindle Motor Drive

No.	Terminal Name	I/O	Function
1	/RST	—	Not used, open
2	NC	—	———
3	IN2	I	Motor driver (2) input
4	PC2	I	Turntable motor drive signal ("L": ON)
5	NC	—	Not used, open
6	IN1	I	Motor driver (1) input
7	PVcc1	I	Driver power supply terminal (1)
8	PGND1	—	Driver GND terminal (1)
9	NC	—	Not used, connected to GND
10	D1–	O	Motor driver (1) output terminal (–)
11	D1+	O	Motor driver (1) output terminal (+)
12	D2–	O	Motor driver (2) output terminal (–)
13	D2+	O	Motor driver (2) output terminal (+)
14	D3–	O	Motor driver (3) output terminal (–)
15	D3+	O	Motor driver (3) output terminal (+)
16	D4–	O	Motor driver (4) output terminal (–)
17	D4+	O	Motor driver (4) output terminal (+)
18	NC	—	Not used, open
19	PGND2P	—	Driver GND terminal (2)
20	PVcc2	I	Driver power supply (2)
21	VCC	I	Power supply terminal
22	VREF	I	Reference voltage input terminal
23	IN4	I	Motor driver (4) input
24	IN3	I	Motor driver (3) input
25	RSTIN	I	Reset terminal (Not used, connected to GND)
26	NC	—	Not used, connected to GND

● IC401 (LC66538A4K17): System control

Pin No.	Terminal Name	I/O	Function
1	NC	—	No used, connected to GND
2	VSS	—	GND terminal
3	OSC1	I	Crystal oscillating circuit input (f = 4.23 MHz)
4	OSC2	O	Crystal oscillating circuit output (f = 4.23 MHz)
5	VDD	I	Power supply (+5 V)
6	/RST	I	Reset signal input ("L": reset)
7	NO SW	I	Disc tray number detection signal input
8	MODE	I	Test mode signal input
9	TEST	—	Test terminal
10	HOLD	I	No used, connected to VDD
11	MLD	O	Command load signal output
12	MDATA	O	Command data signal output
13	MCLK	O	Command clock signal output
14	VDATA IN	—	No used, connected to GND
15	EMPHA	—	No used, open
16	MUTE	—	No used, open
17	CS	O	Communication request signal output to SA-EH600
18	REQ	I	Communication request signal input from SA-EH600
19	DTI	I	Communication data signal input from SA-EH600
20	DTO	O	Communication data signal output to SA-EH600
21	CLK	O	Communication clock signal output to SA-EH600
22	VCS	—	No used, open
23	LSTB	O	LED drive signal output
24	LCLK	O	LED drive command clock signal output
25	LDATA	O	LED drive command data signal output
26	—	—	No used, connected to VDD
27	STOCK SW	I	Stocker position detection signal input
28	UP SW	I	Disc tray up position detection signal input
29	VCLK	—	No used, open
30	VDATA	—	No used, open
31	KEY1	I	Key switch detection signal input
32	KEY2	I	Key switch detection signal input
33	PLY SW	I	Disc tray play position detection signal input
34	OPEN SW	I	Disc tray open position detection signal input
35	REV	O	Loading motor drive (reverse) signal output
36	FWD	O	Loading motor drive (forward) signal output
37	SENSE	I	Sense signal input
38	FLOCK	I	Focus servo feeding signal input ("L": Feed)
39	TLOCK	I	Tracking servo feeding signal input ("L": Feed)
40	REST SW	I	Rest position detection signal input
41	SVRST	O	Reset signal output to IC702
42	STAT	I	Status signal input
43	SUBQ	I	Sub-code Q code input
44	DMUTE	—	No used, open
45	SQCK	O	Sub-code Q resister clock signal output
46	BLKCK	I	Sub-code block clock signal input (fBLKCK = 75 Hz during normal playback)
47	ESPD	—	No used, connected to VDD
48	GMUTE	—	No used, open

Replacement Parts List

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors); high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*All parts are supplied by MESA.

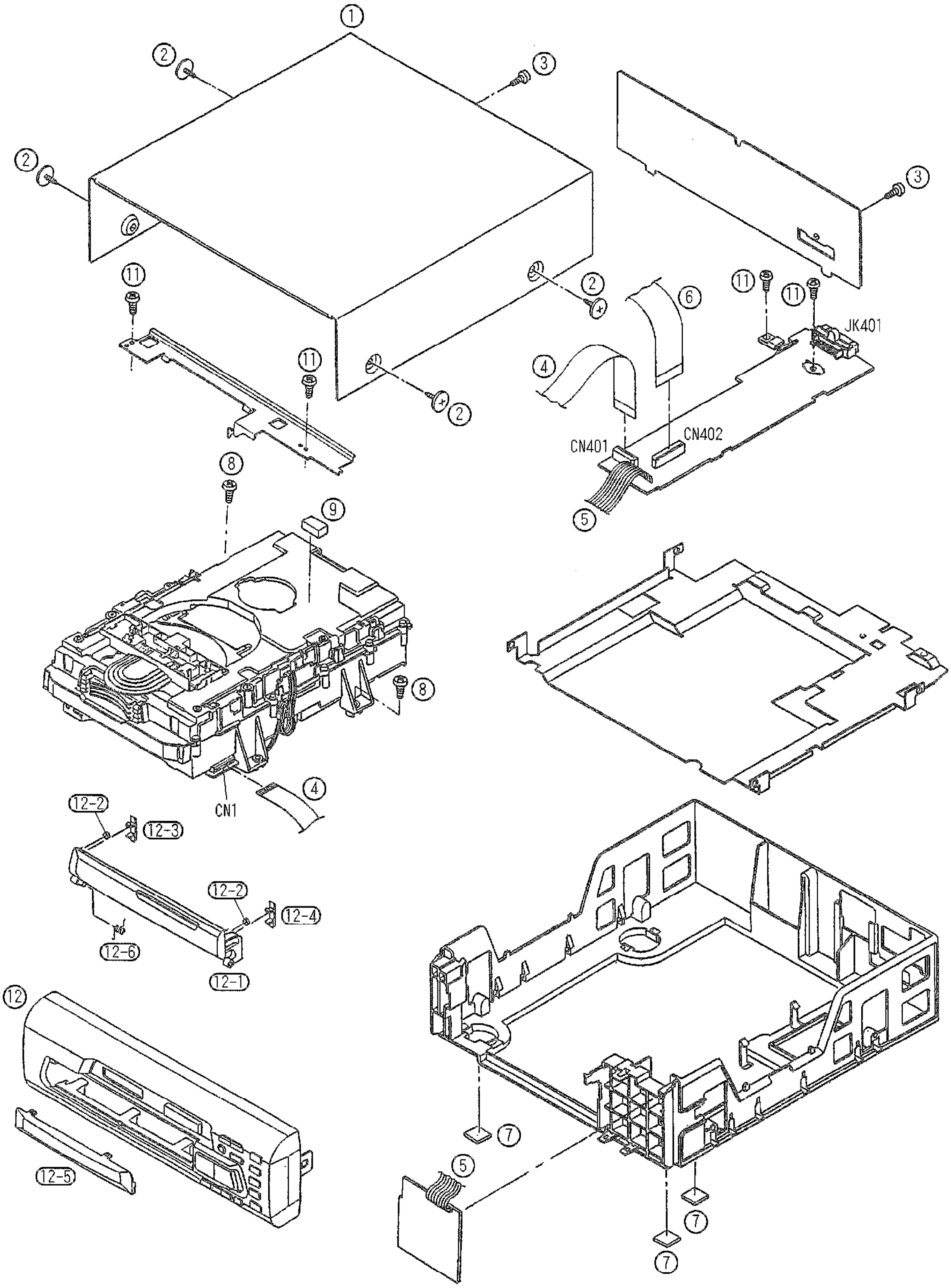
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0222-H	CABINET	1	
2	RHD30007-K1	SCREW	4	
3	XTBS3+8JFZ1	SCREW	2	
4	REZ0555	FLAT CABLE	1	
5	REZ1103	FLAT CABLE(9P)	1	
6	REZ0765	FFC(23P)	1	
7	RKA0089-K	RUBBER	3	
8	RHD30065	SCREW	2	
9	RMG0439-K	RUBBER	1	
11	XTB3+8JFZ	SCREW	4	
12	RYP0731D-H	FRONT PANEL ASS'Y	1	
12-1	RGK0890A-H	DISC COVER	1	
12-2	RMG0305-K	RUBBER	2	
12-3	RKQ0197-X	CAP 1	1	
12-4	RKQ0204-X	CAP 2	1	
12-5	RKW0503A-Q	ORNAMENT PANEL	1	
12-6	RMB0472	SPRING	1	
301	RDG0309	GEAR	1	
302	RDG0310	GEAR	1	
303	RDG0311	GEAR	1	
304	RDG0313	GEAR	1	
305	RDV0036	BELT	1	
306	REM0058	MOTOR ASS'Y	1	
307	RGQ0170-K3	DISC TRAY(1)	1	
308	RGQ0171-K	DISC TRAY(2)	1	
309	RGQ0172-K	DISC TRAY(3)	1	
310	RGQ0173-K	DISC TRAY(4)	1	
311	RGQ0174-K	DISC TRAY(5)	1	
312	RME0170	SPRING	1	
313	RME0179	SPRING	1	
314	RME0180	SPRING	1	
315	RFKNACH430GC	MACHANISM BASE ASS'Y	1	
315-1	RMF0221	FELT	1	
315-2	RMG0402-K	WASHER	4	
316	RML0379	LEVER	1	
317	RML0380	LEVER	1	
318	RML0383	LEVER	1	
319	RML0385	LEVER	1	
320	RMM0139	SLIDE PLATE(1)	1	
321	RMM0141	SLIDE PLATE(2)	1	
322	RGQ0175-K	TRAY ORNAMENT	1	
323	RHD20010	SCREW	1	
324	RMA0868	ANGLE	1	
325	RME0171	SPRING	1	
326	RME0172	SPRING	1	
327	RML0377	LEVER	1	
328	RML0378	LEVER	1	
329	RMR0884-K	TRAY BASE	1	
330	RHD20009-1	SCREW	1	
331	RMC0274	SPRING	1	
332	RME0173	SPRING	1	
333	RML0376-1	ARM	1	
334	RMM0137	CARRIER	1	
335	RDG0312	GEAR	2	
336	RMM0134	DRIVE RACK	1	
337	RMM0135	CUSHION RACK	1	
338	XTN2+6F	SCREW	1	
339	XTS3+8J	SCREW	2	
340	XWE4E10	WASHER	2	
341	RME0178	SPRING	2	
342	RME0181	SPRING	1	
343	RME0182	SPRING	1	
344	RFKNLCA10EAK	MECHANISM COVER ASS'Y	1	
344-1	RMF0221	FELT	1	
345	RML0381	HOLD NAIL(1)	1	
346	RML0382	HOLD NAIL(2)	1	
347	RML0384	LEVER	2	
348	RHM245ZA	MAGNET	1	
349	RME0174	SPRING	1	
350	RFKNACH430GE	CLAMP BASE ASS'Y	1	
351	RML0388-1	LEVER	1	
352	RMR0761-W	CLAMPER	1	
353	RMR0899-K	FIXED PLATE	1	
354	XTB3+10J	SCREW	11	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
355	RMR0975-W	CAP	1	
356	REZ0555	FFC(14P)	1	
357	RME0142	SPRING	1	
358	RMK0293	TRAVERSE CHASSIS	1	
359	RMS0627	PIN	2	
360	XTN2+6G	SCREW	1	
361	XTV2+6G	SCREW	2	
362	REZ0792	FLAT CABLE ASS'Y(3P)(W2)	1	
363	REZ0793	FLAT CABLE ASS'Y(3P)(W1)	1	
364	RMG0430-Q	RUBBER TUBE	4	
365	XTWS3+8T	SCREW	2	
⚠ 366	RAE0152Z	TRAVERSE DECK UNIT	1	
366-1	SHGD113-1	RUBBER	3	
366-2	SNSD38	SCREW	2	
367	RME0109	SPRING	2	
368	REZ0765	FFC(23P)	1	
C1	ECA1AKF820E	10V 82U	1	
C1A	ECA1CM471B	16V 470UF	1	
C2	ECBT1E103ZF5	25V 0.01U	1	
C4	ECBT1H102KB5	50V 1000P	1	
C5	RCE1CKA470BG	16V 47U	1	
C9	ECA1AKF820B	10V 82U	1	
C401	RCE1HKA3R3BG	50V 3.3U	1	
C402,03	ECBT1H102KB5	50V 1000P	2	
C404,05	ECBT1E103ZF5	25V 0.01U	2	
C406	ECEA0JKA221B	6.3V 220U	1	
C407	ECEA1AKA221B	10V 220U	1	
C408	ECBT1H101KB5	50V 100P	1	
C410	ECEA0JKA470B	6.3V 47UF	1	
C411	ECBT1H104ZF5	50V 0.1U	1	
C413,14	ECBT1H102KB5	50V 1000P	2	
C415	ECEA0JKA470B	6.3V 47UF	1	
C416,17	ECBT1H102KB5	50V 1000P	2	
C601	ECBT1E103ZF5	25V 0.01U	1	
C602	ECEA1HKA010B	50V 1U	1	
C603-05	ECBT1H101KB5	50V 100P	3	
C701	ECEA0JKA330I	6.3V 33U	1	
C702	ECUZNE104MBN	25V 0.1U	1	
C703	ECEA0JKA101I	6.3V 100U	1	
C704	ECUZNE104MBN	25V 0.1U	1	
C706	ECUE1H272KBN	50V 2700P	1	
C707	ECUV1E273KBN	25V 0.027U	1	
C710	ECUE1H151KCN	50V 150P	1	
C711,12	ECUWNE104ZFN	25V 0.1U	2	
C713	ECUZNE104MBN	25V 0.1U	1	
C714	ECEA0JKA101I	6.3V 100U	1	
C715	ECUE1H182KBN	50V 1800P	1	
C716	ECUE1H821KBN	50V 820P	1	
C717	ECUWNE104ZFN	25V 0.1U	1	
C718	ECUVNC224KBN	16V 0.22U	1	
C721,22	ECUE1H150JCN	50V 15P	2	
C723	ECEA1AKA221I	10V 220U	1	
C724	ECUZNE104MBN	25V 0.1U	1	
C725,26	ECUE1H102KBN	50V 1000P	2	
C727,28	ECEA1HPK010I	50V 1U	2	
C730	ECUWNE104ZFN	25V 0.1U	1	
C731,32	ECEA0JKA221I	6.3V 220U	2	
C733	ECUZNE104MBN	25V 0.1U	1	
C734	ECEA1AKA221I	10V 220U	1	
C735-37	ECUWNE104ZFN	25V 0.1U	3	
C738	ECUZNE104MBN	25V 0.1U	1	
C739	ECUE1H103KBN	50V 0.01U	1	
C742	ECUV1E273KBN	25V 0.027U	1	
C743	ECUWNE104ZFN	25V 0.1U	1	
C744	ECUV1E183KBN	25V 0.018U	1	
C745	ECUE1C473KBN	16V 0.047U	1	
C747	ECUE1H221KBN	50V 220P	1	
C749	ECUE1H222KBN	50V 2200P	1	
C750,51	ECUZNE104MBN	25V 0.1U	2	
C752	ECUE1H102KBN	50V 1000P	1	
C753	ECUV1H471KBM	50V 470P	1	
C754	ECUE1H471KBN	50V 470P	1	
C761,62	ECUE1H471KBN	50V 470P	2	

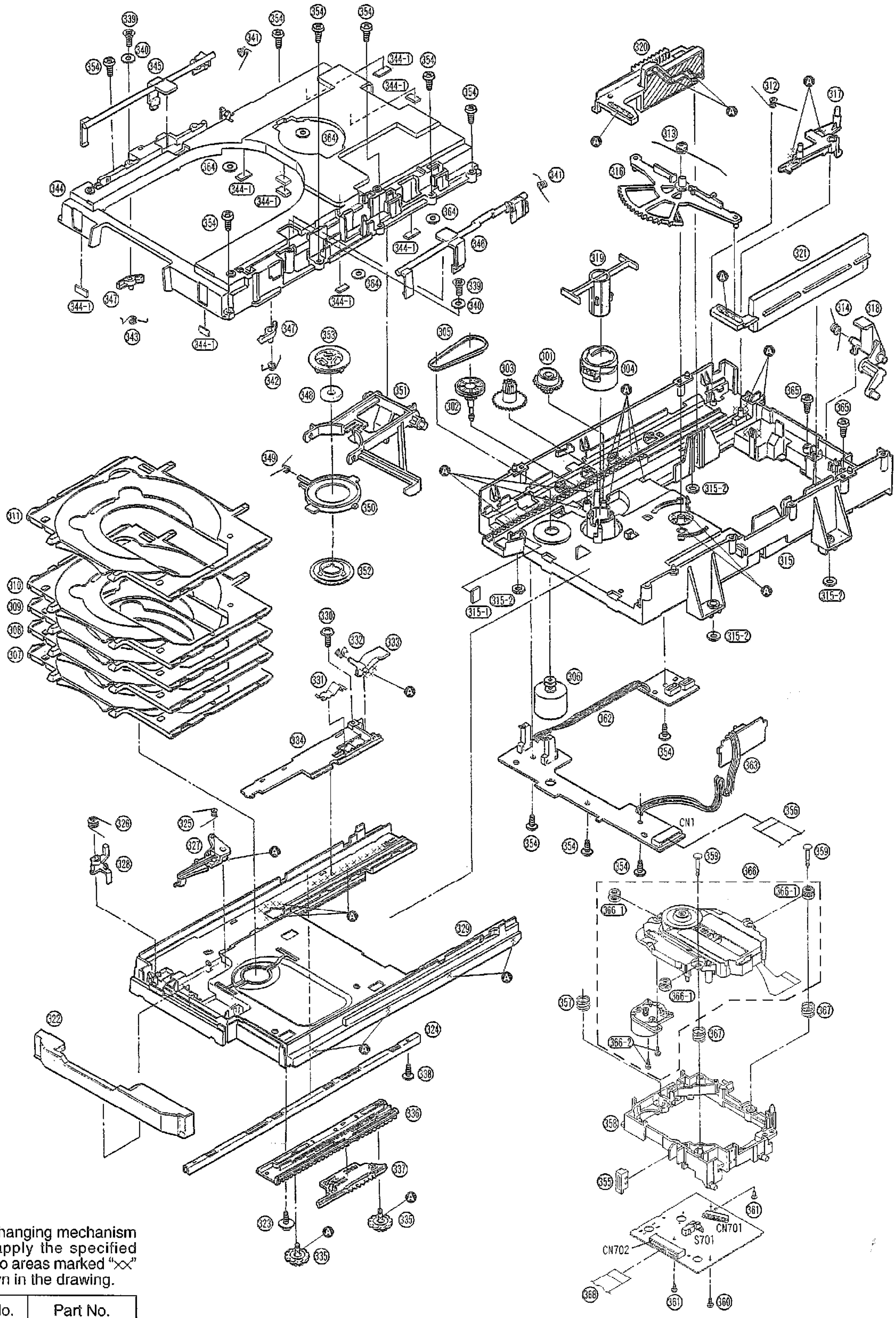
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
CN1	RJS1A6714	CONNECTOR(14P)	1	
CN401	RJS1A6814	CONNECTOR(14P)	1	
CN402	RJS1A6823	CONNECTOR(23P)	1	
CN701	RJU035T016-1	CONNECTOR(16P)	1	
CN702	RJS1A6723-1Q	CONNECTOR(23P)	1	
D3,D4	MA165	DIODE	2	
⚠ D5	MA4075MTA	DIODE	1	
D401-04	MA165	DIODE	4	
D601-05	LNJ301MPUJAD	LED	5	
D606	SPR505MDTT	LED	1	
D617	MA165	DIODE	1	
E1	SNE1004-2	EARTH TERMINAL	1	
IC1	BA6418N	IC	1	
⚠ IC1A	LM2940T5M	IC	1	
IC401	LC66538A4K17	IC	1	
IC601	NJU3713GTE1	IC	1	
IC701	AN8837SBE1	IC	1	
IC702	MN662746RPK1	IC	1	
IC703	AN8780NSBE2	IC	1	
JK401	RJT065K19	SYSTEM	1	
L1	BL02RN2R65T2	COIL	1	
L401	RLQA100JT-Y	COIL	1	
⚠ Q1	2SB1548PQAU	TRANSISTOR	1	
⚠ Q2	2SC3311A1QST	TRANSISTOR	1	
Q401	DTC114YSTP	TRANSISTOR	1	
Q402-04	2SC3311A1QST	TRANSISTOR	3	
Q405	2SA1309ATA	TRANSISTOR	1	
Q701	2SB709STX	TRANSISTOR	1	
Q702	DTC114YKA146	TRANSISTOR	1	
R2	ERDS2TJ471T	1/4W 470	1	
R3	ERDS2TJ223T	1/4W 22K	1	
R4	ERDS2FJ101	1/4W 100	1	
R5	ERDS2FJ102	1/4W 1K	1	
R401	ERDS2FJ105	1/4W 1M	1	
R402	ERDS2FJ102	1/4W 1K	1	
R403	ERDS2FJ104	1/4W 100K	1	
R404	ERDS2TJ471T	1/4W 470	1	
R405	ERDS2FJ101	1/4W 100	1	
R406	ERDS2TJ471T	1/4W 470	1	
R407	ERDS2TJ1R0T	1/4W 1	1	
R408-10	ERDS2TJ473T	1/4W 47K	3	
R412,13	ERDS2FJ103	1/4W 10K	2	
R414	ERDS2TJ471T	1/4W 470	1	
R415-22	ERDS2FJ103	1/4W 10K	8	
R423-25	ERDS2FJ101	1/4W 100	3	
R426	ERDS2FJ102	1/4W 1K	1	
R427	ERDS2TJ182T	1/4W 1.8K	1	
R432	ERDS2TJ123T	1/4W 12K	1	
R433	ERDS2FJ103	1/4W 10K	1	
R434,35	ERDS2FJ101	1/4W 100	2	
R436,37	ERDS2FJ472	1/4W 4.7K	2	
R438	ERDS2FJ102	1/4W 1K	1	
R439	ERDS2TJ223T	1/4W 22K	1	
R440	ERDS2TJ473T	1/4W 47K	1	
R441	ERDS2FJ472	1/4W 4.7K	1	
R442	ERDS2FJ103	1/4W 10K	1	
R444	ERDS2FJ472	1/4W 4.7K	1	
R445	ERDS2TJ473T	1/4W 47K	1	
R446	ERDS2FJ472	1/4W 4.7K	1	
R447,48	ERDS2TJ221T	1/4W 220	2	
R449,50	ERDS2TJ473T	1/4W 47K	2	
R452	ERDS2FJ103	1/4W 10K	1	
R453	ERDS2TJ473T	1/4W 47K	1	
R454	ERDS2FJ102	1/4W 1K	1	
R455,56	ERDS2TJ471T	1/4W 470	2	
R457	ERDS2TJ473T	1/4W 47K	1	
R458	ERDS2TJ182T	1/4W 1.8K	1	
R601	ERDS2FJ104	1/4W 100K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R602-04	ERDS2FJ101	1/4W 100	3	
R605-10	ERDS2TJ271T	1/4W 270	6	
R611	ERDS2TJ822T	1/4W 8.2K	1	
R612	ERDS2TJ562	1/4W 5.6K	1	
R613	ERDS2FJ272	1/4W 2.7K	1	
R614	ERDS2FJ222	1/4W 2.2K	1	
R615	ERDS2TJ223T	1/4W 22K	1	
R617	ERDS2TJ123T	1/4W 12K	1	
R618	ERDS2FJ682	1/4W 6.8K	1	
R619	ERDS2FJ472	1/4W 4.7K	1	
R620	ERDS2TJ332T	1/4W 3.3K	1	
R621	ERDS2FJ222	1/4W 2.2K	1	
R622	ERDS2TJ182T	1/4W 1.8K	1	
R623	ERDS2TJ152T	1/4W 1.5K	1	
R624	ERDS2TJ122T	1/4W 1.2K	1	
R701	ERJ6GEYJ4R7Z	1/10W 4.7	1	
R702	ERJ6GEYJ822V	1/10W 8.2K	1	
R704	ERJ6GEYJ102A	1/10W 1K	1	
R705	ERJ6GEYJ124Z	1/10W 120K	1	
R706	ERJ6GEYJ102A	1/10W 1K	1	
R707	ERJ6GEYJ474Z	1/10W 470K	1	
R708	ERJ6GEYJ154V	1/10W 150K	1	
R709	ERJ6GEYJ473Z	1/10W 47K	1	
R710	ERJ6GEYJ103V	1/10W 10K	1	
R711	ERJ6GEYJ104Z	1/10W 100K	1	
R712	ERJ6GEYJ151V	1/10W 150	1	
R715	ERJ6GEYJ122Z	1/10W 1.2K	1	
R717-20	ERJ6GEYJ102A	1/10W 1K	4	
R721	ERJ6GEYJ101Z	1/10W 100	1	
R723	ERJ6GEYJ272Z	1/10W 2.7K	1	
R724	ERJ6GEYJ333Z	1/10W 33K	1	
R725	ERJ6GEYJ122Z	1/10W 1.2K	1	
R727,28	ERJ6GEYJ682Z	1/10W 6.8K	2	
R729	ERJ6GEYJ562V	1/10W 5.6K	1	
R731	ERJ6GEYJ123Z	1/10W 12K	1	
R734-36	ERJ6GEYJ101Z	1/10W 100	3	
R738	ERJ6GEYJ223Z	1/10W 22K	1	
R741-43	ERJ6GEYJ562V	1/10W 5.6K	3	
R744	ERJ6GEYJ104Z	1/10W 100K	1	
R745	ERJ6GEYJ106V	1/10W 10M	1	
R748	ERJ6GEYJ272Z	1/10W 2.7K	1	
R749	ERJ6GEYJ682Z	1/10W 6.8K	1	
R752	ERJ8GEYJ220V	1/8W 22	1	
R770	ERJ6GEYJ224Z	1/10W 220K	1	
RJ701-09	ERJ6GEY0R00A	CHIP JUMPER	9	
RJ710	ERJ8GEY0R00A	CHIP JUMPER	1	
RJ721-28	ERJ6GEY0R00A	CHIP JUMPER	8	
RJ750	ERJ6GEY0R00A	CHIP JUMPER	1	
S1,S2	RSH1A005	SW	2	
S3-S5	RSH1A032-U	SW	3	
S601-15	EVQPTD05Q	SW	15	
S701	RSH1A043-U	SW	1	
SA1	SZZP1054C	TEST DISC	1	
SA2	RFKXPG671	GREASE	1	
TJ701,02	EYF8CU	TEST JUMPER	2	
X401	EF0EC4234T3	OSCILLATOR	1	
X701	RSXZ16M9M01T	OSCILLATOR	1	

▩ Cabinet Parts Location


①
②
③
②
③
⑪
②
⑥
⑪
⑪
JK401
④
⑪
②
CN401
CN402
⑧
⑤
⑨
⑧
④
CN1
12-2
12-3
12-2
12-4
12-6
12-1
⑫
⑦
⑤
12-5
⑦
⑦

■ Loading Unit Parts Location


339
354
340
345
341
354
354
354
344-1
354
344-1
354
364
364
344-1
344-1
344
354
364
344-1
346
341
339
340
344-1
364
344-1
347
343
347
344-1
353
342
348
351
349
350
352
311
310
309
308
307
330
332
333
331
A
334
326
328
325
327
A
A
329
A
322
324
A
338
336
337
A
323
335
A
335
320
A
A
312
A
317
313
316
A
321
319
314
318
305
301
303
304
302
A
A
365
365
A
315-2
315-1
315-2
315
A
315-2
315-2
306
362
354
363
354
354
356
354
CN1
359
359
366
366-1
366-1
366-1
357
367
366-2
367
358
355
361
CN701
S701
CN702
368
361
360

Note:
When changing mechanism parts, apply the specified grease to areas marked "xx" as shown in the drawing.

Ref. No.	Part No.
Ⓐ	RFKXPG671

Printed in Japan
F980208000HS/KH

ORDER NO. AD9712165C3

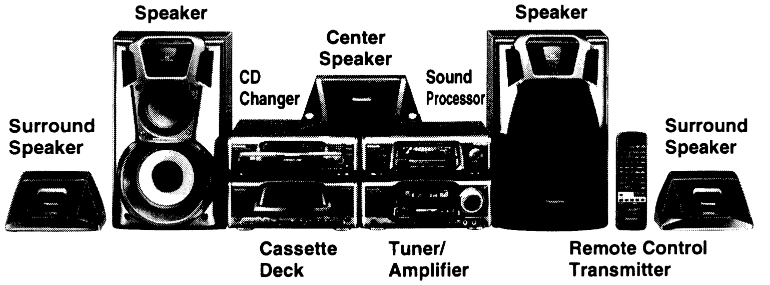
Service Manual

Stereo Cassette Deck

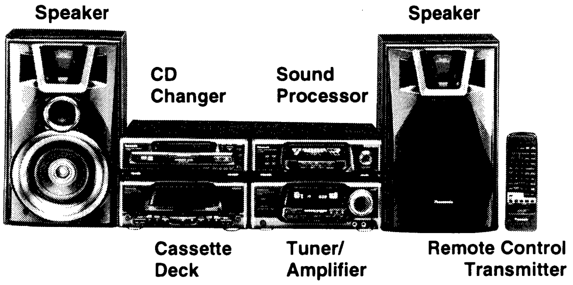
Cassette Deck

RS-EH600

System Type A



System Type B



Colour

(K) .... Black Type
(H) .... Gray Type

Areas

(GK)...... China.
(GCS) ... Asia, Latin America, Middle East, Africa and Oceania.

DOLBY B NR * 1

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

* 1 : Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol DD are trade marks of Dolby Laboratories Licensing Corporation.

* 2 : Made in Singapore

System	System Type A				System Type B
	SC-VC968	**SC-VC868**	**SC-VC848**	**SC-EH501**	**SC-VC838**
Colour	(K)	(K)	(H)	(K)	(H)
Sound Processor	SH-EH600	SH-EH500	SH-EH500	SH-EH500	SH-EH400
Tuner / Amplifier	SA-EH600	SA-EH500	SA-EH501	SA-EH501	SA-EH400
CD Changer	SL-EH600	SL-EH600	SL-EH600	SL-EH600A	SL-EH600
Cassette Deck	**RS-EH600**	**RS-EH600**	**RS-EH600**	**RS-EH600**	**RS-EH600**
Front Speakers*2	SB-VC968	SB-VC868	SB-VC848	SB-EH501	SB-VC868
Center Speaker*2	SB-PC600X	SB-PC600X	SB-PC600X	SB-PC600X	–
Surround Speakers*2	SB-PS600X	SB-PS600X	SB-PS600X	SB-PS600X	–

AR-2 MECHANISM SERIES

Specifications

Deck system :	Stereo cassette deck
Track system :	4 track, 2 channels
Recording system :	AC bias
Bias frequency ;	100 kHz
Erasing system :	AC erase
Heads :	
DECK 1 (Playback head) ;	Permalloy head
DECK 2 (Recording/Playback head) ;	Permalloy head
(Erasing head) ;	Double gap ferrite head
Motors :	
DECK 1, 2 Capstan drive ;	DC servo motor
Tape speed :	4.8 cm/sec.
Wow and flutter :	0.16 % (WRMS)
Fast forward and rewind times :	Approx. 110 seconds with C-60 cassette tape
Frequency response (Dolby NR off) :	
TYPE I (NORMAL) ;	20 Hz–16 kHz (DIN)
TYPE II (HIGH) ;	20 Hz–16 kHz (DIN)
TYPE IV (METAL) ;	20 Hz–16 kHz (DIN)
S/N (Signal level = max recording level, TYPE II type tape) :	
NR off ;	56 dB (A weighted)
Dolby B NR on ;	66 dB (A weighted)
Input sensitivity and impedance :	
REC (IN) ;	400 mV/23 kΩ
Output voltage and impedance :	
PLAY (OUT) ;	280 mV/360 Ω
Dimensions :	287 (W) x 118.5 (H) x 277 (D) mm
Weight :	2.0 kg

Notes : Specifications are subject to change without notice.
Weight and dimensions are approximate.

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

© 1997 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

■ Contents

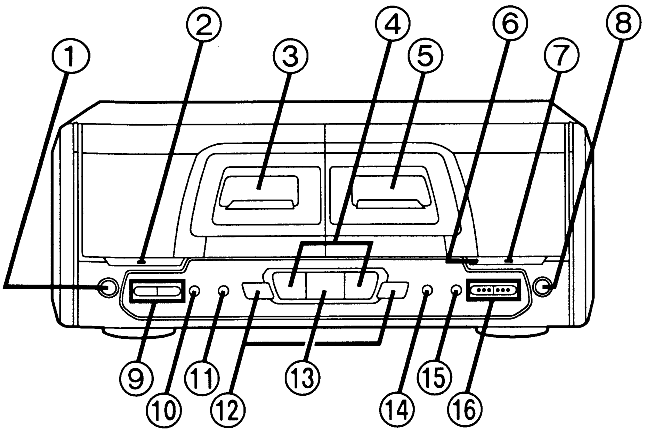
Page
Location of Controls 2
Operation Checks and
Main Component Replacement Procedures .... 3 ~ 12
To Supply Power Source 13
To Check Signals 13
Service Mode Function of Cassette Mechanism 14, 15
Schematic Diagram .... 16 ~ 21
Printed Circuit Board Diagram 22, 23
Page
Type Illustration of IC's, Transistors and Diodes 24
Wiring Connection Diagram 24
Terminal Function of IC's 25
Block Diagram 26, 27
Measurements and Adjustments .... 28 ~ 30
Replacement Parts List .... 31 ~ 33
Mechanism Parts Location 34, 35
Cabinet Parts Location 36

Note :

For information on " Accessories", "Installation", "Connections" and "Packaging", refer to the service manual as indicated below:

System	**SC-VC968**	**SC-VC868**	**SC-VC848**	**SC-VC838**	**SC-EH501**
Model No.	SA-EH600	SA-EH500	SA-EH501	SA-EH400	SA-EH501
Order No.	AD9712166C3	AD9712178C3	AD9712182C3	AD9712179C3	AD9712182C3

■ Location of Controls



① Deck 1 cassette holder open button (⏏ OPEN)
② Deck 1 indicator (DECK 1)
③ Deck 1 cassette holder
④ Playback buttons and indicators (◁,▷)
⑤ Deck 2 cassette holder
⑥ Record pause indicator (REC PAUSE)
⑦ Deck 2 indicator (DECK 2)
⑧ Deck 2 cassette holder open button (⏏ OPEN)
⑨ Counter reset, display buttons (COUNTER, RESET, DISPLAY)
⑩ Deck 1/deck 2 select button (DECK 1/2)
⑪ Reverse mode select button (REV MODE)
⑫ Fast forward/rewind buttons (◀◀ , ▶▶)
⑬ Stop button (■)
⑭ Dolby noise reduction button (DOLBY NR)
⑮ Record pause button (● REC PAUSE)
⑯ Tape edit buttons (TAPE EDIT, NOR, HIGH)

■ Operation Checks and Main Component Replacement Procedures

NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

• Contents

•Checking Procedure for each P.C.B.

Page.

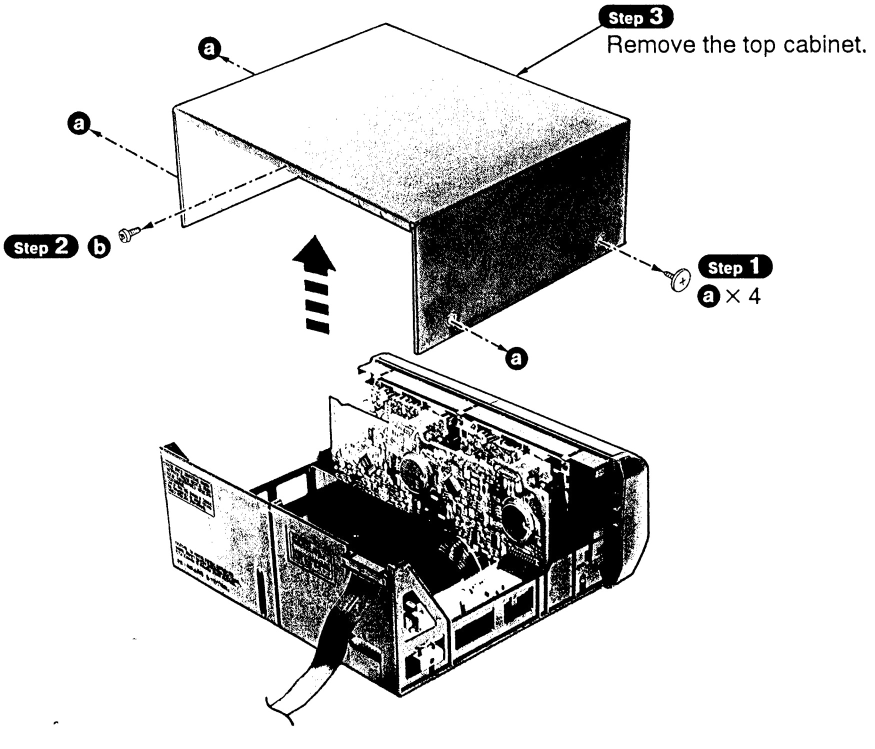
1. Checking for the main P.C.B. and power supply P.C.B.. •••••• 3,4.
2. Checking for the operation P.C.B.. •••••• 5,6.

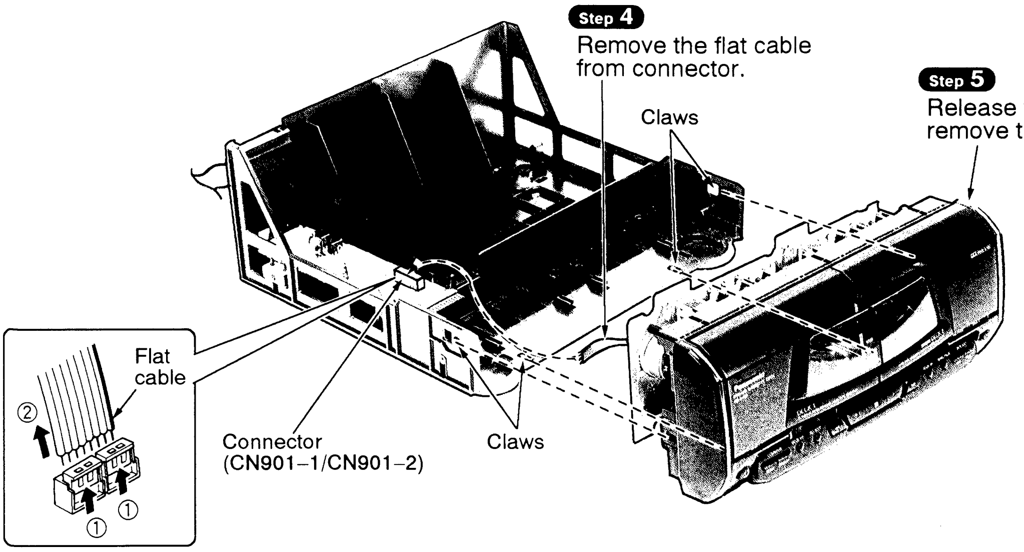
•Main Component Replacement Procedures

1. Replacement for the cassette panel ass'y. •••••• 7.
2. Replacement for the cassette holder. •••••• 7.
3. Replacement for the motor ass'y, capstan belt and winding belt. •••••• 8~11.
4. Replacement for the plunger ass'y and the parts mounted on mechanism P.C.B.. •••••• 11,12.
5. Replacement for the head block and pinch roller ass'y. •••••• 12.

■ Checking Procedure for each P.C.B.

1. Checking for the main P.C.B. and power supply P.C.B.



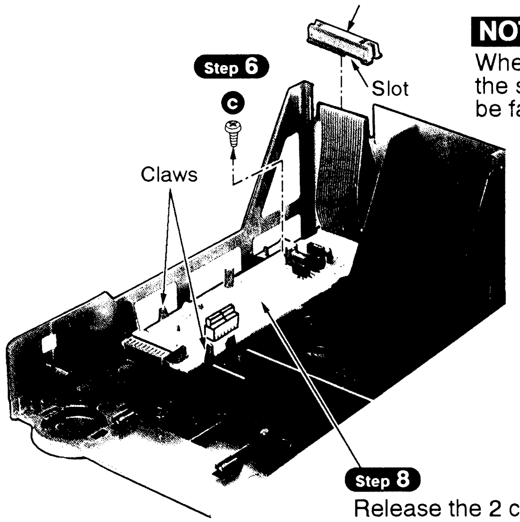

Step 4
Remove the flat cable from connector.

Step 5
Release the 4 claws, and then remove the front panel ass'y.

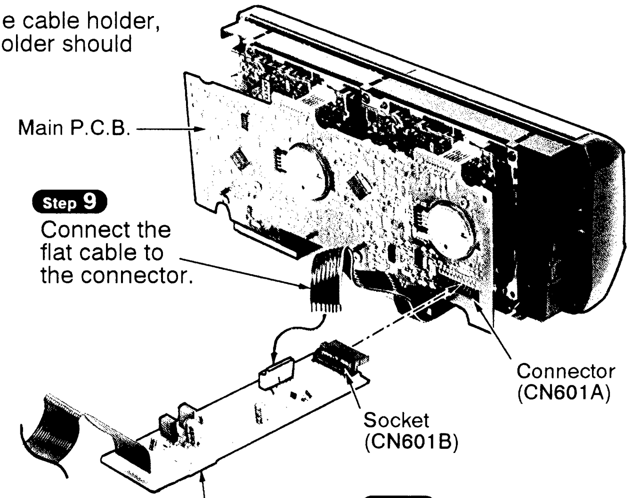
Claws
Flat cable
②
①
①
Connector
(CN901–1/CN901–2)
Claws

Step 7
Remove the cable holder.

NOTE
When installing the cable holder, the slot of cable holder should be faced inward.


Step 6

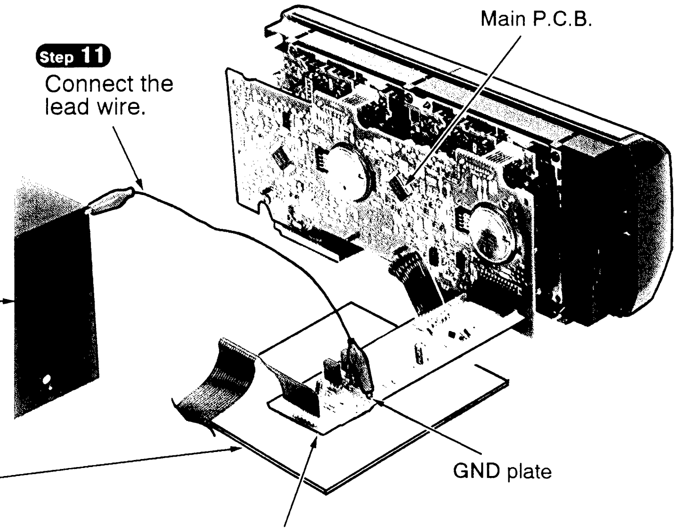
Step 8
Release the 2 claws, and then remove the power supply P.C.B..


Step 9
Connect the flat cable to the connector.

Step 10
Connect the socket (CN601B) to the connector (CN601A).

Main P.C.B.
Connector
(CN601A)
Socket
(CN601B)
Power supply P.C.B.

- **Check the main P.C.B. and power supply P.C.B. as shown below.**

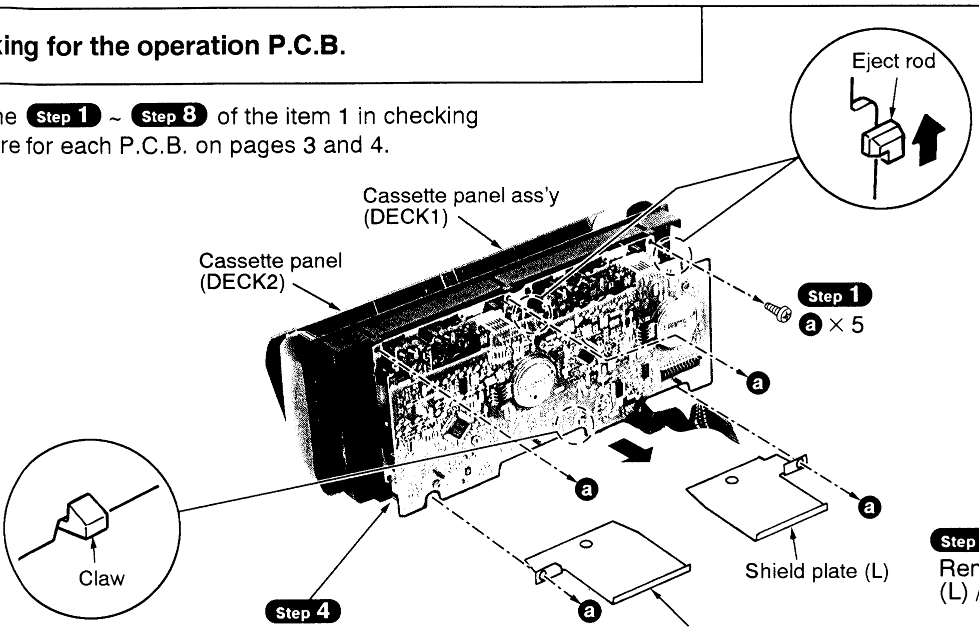

Step 11
Connect the lead wire.

NOTE
Place the power supply P.C.B. on the insulation material not to short–circuit the solder side of power supply P.C.B..

Main P.C.B.
Top cabinet
GND plate
Power supply P.C.B.

2. Checking for the operation P.C.B.

- Follow the **Step 1** ~ **Step 8** of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.

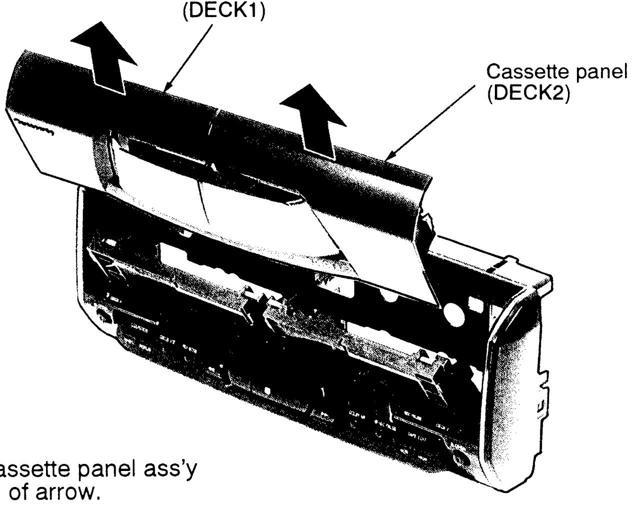

Eject rod
Cassette panel ass'y (DECK1)
Cassette panel (DECK2)
a
a
a
a
Claw
Shield plate (L)
Shield plate (R)

Step 3
Press the eject rod in the direction of arrow, and then open the cassette panel ass'y.

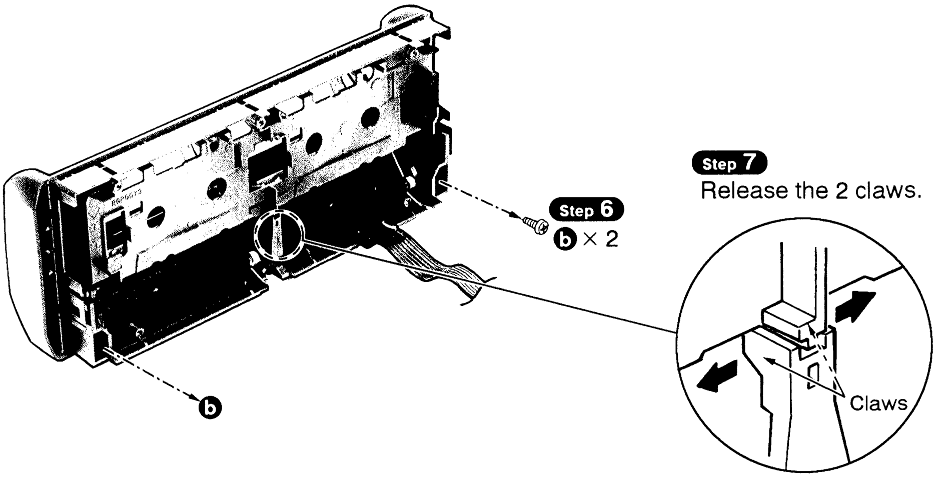
Step 1
a × 5

Step 2
Remove the shield plate (L) / (R).

Step 4
Release the claw, and then remove the mechanism unit.

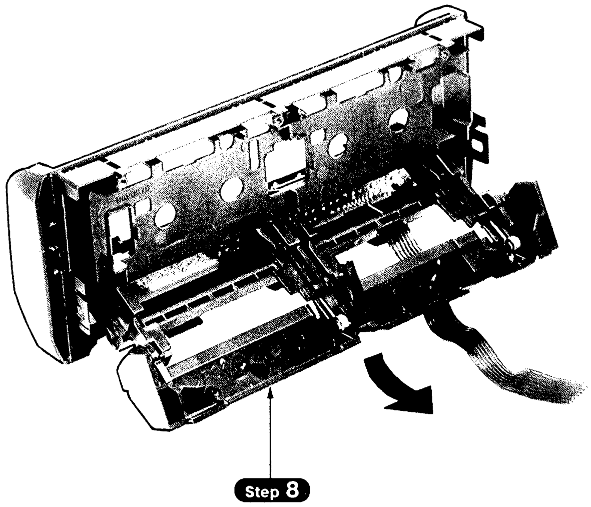

Cassette panel ass'y (DECK1)
Cassette panel (DECK2)

Step 5
Remove the cassette panel ass'y in the direction of arrow.

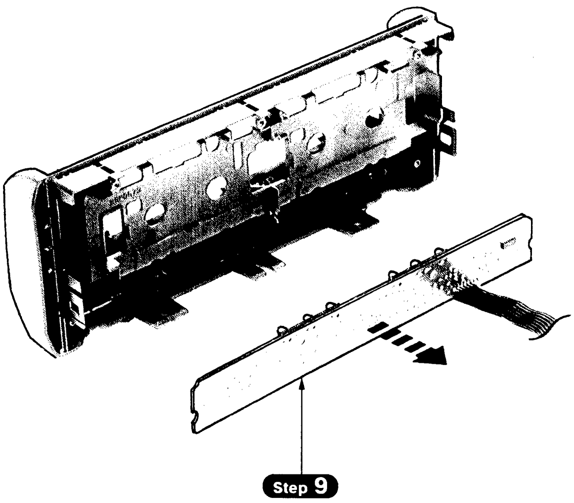


Step 6
b × 2

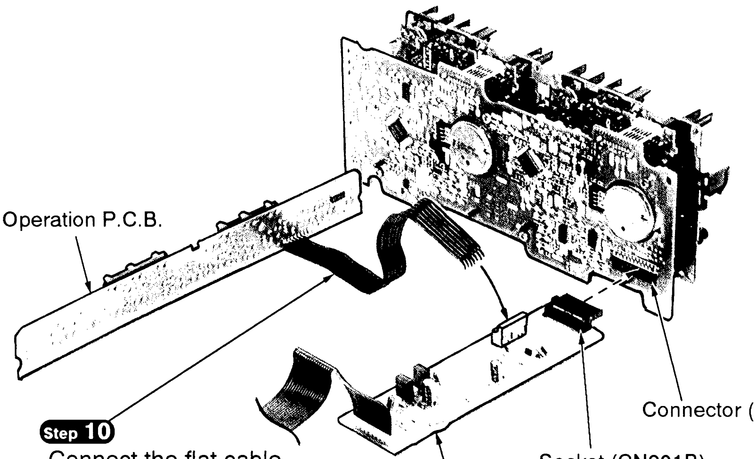
Step 7
Release the 2 claws.



Step 8
Remove the deck mecha frame in the direction of arrow.



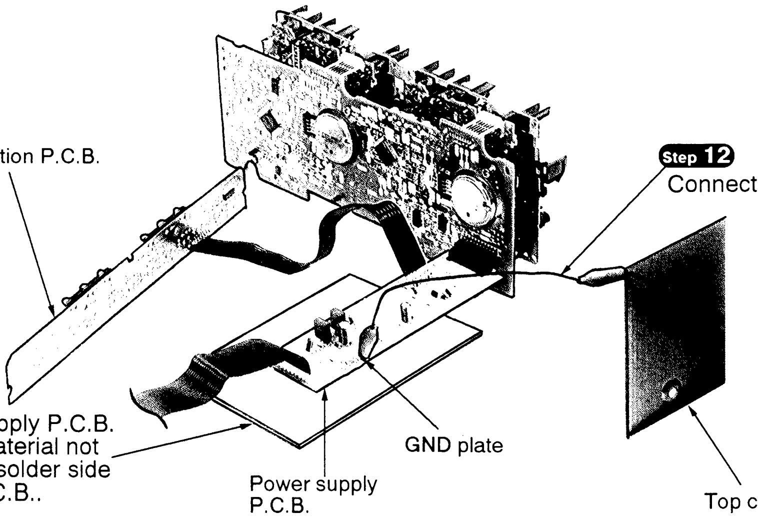
Step 9
Remove the operation P.C.B..


Operation P.C.B.
Connector (CN601A)
Socket (CN601B)
Power supply P.C.B.

Step 10
Connect the flat cable to the connector.

Step 11
Connect the socket (CN601B) to the connector (CN601A).

- **Check the operation P.C.B. as shown below.**


Operation P.C.B.
GND plate
Power supply P.C.B.
Top cabinet

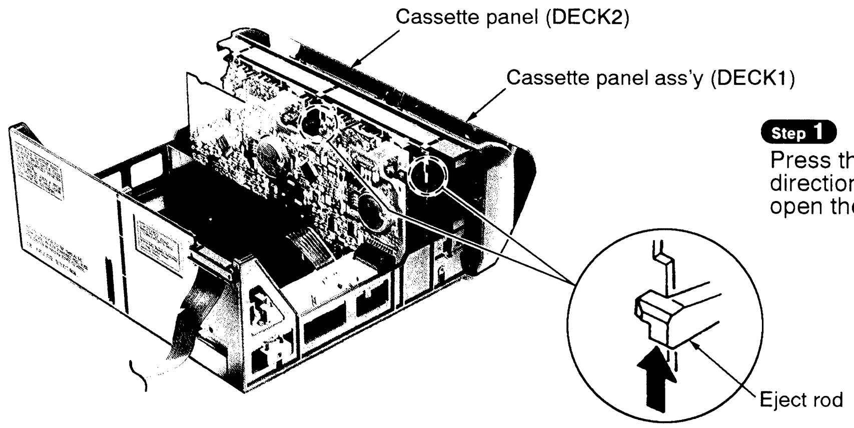
Step 12
Connect the lead wire.

NOTE
Place the power supply P.C.B. on the insulation material not to short–circuit the solder side of power supply P.C.B..

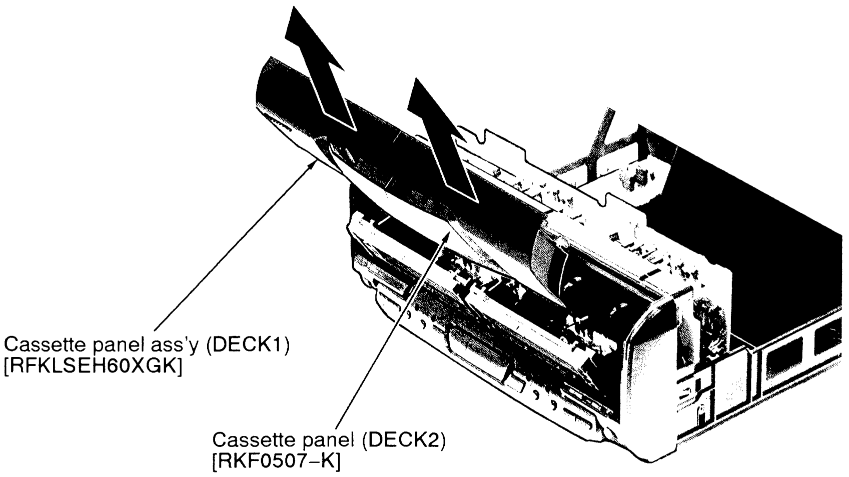
■ Main Component Replacement procedures

1. Replacement for the cassette panel ass'y

- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.


Cassette panel (DECK2)
Cassette panel ass'y (DECK1)
Eject rod

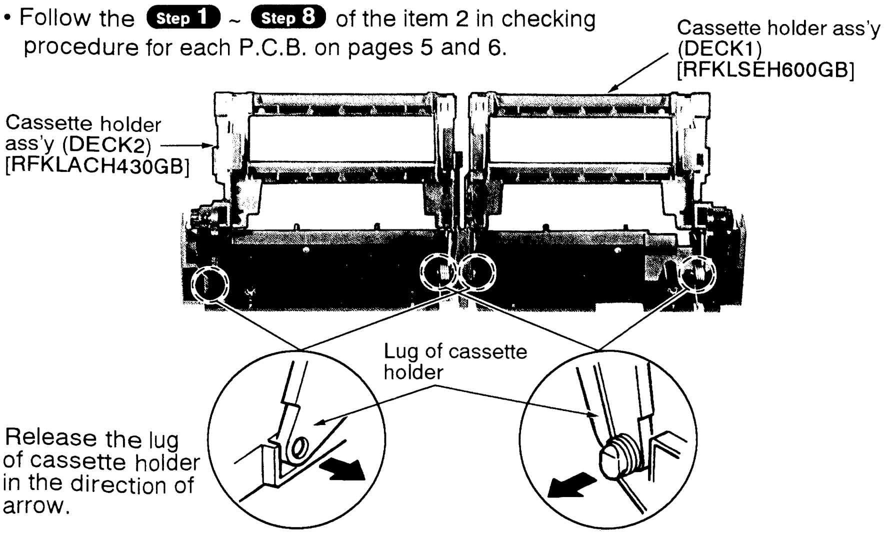
Step 1
Press the eject rod in the direction of arrow, and then open the cassette panel ass'y.


Cassette panel ass'y (DECK1)
[RFKLSEH60XGK]
Cassette panel (DECK2)
[RKF0507–K]

Step 2
Remove the cassette panel ass'y in the direction of arrow.

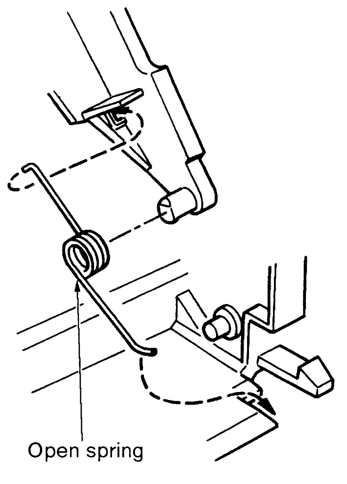
2. Replacement for the cassette holder

- Follow the Step 1 ~ Step 5 of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the Step 1 ~ Step 8 of the item 2 in checking procedure for each P.C.B. on pages 5 and 6.


Cassette holder ass'y (DECK1)
[RFKLSEH600GB]
Cassette holder ass'y (DECK2)
[RFKLACH430GB]
Lug of cassette holder

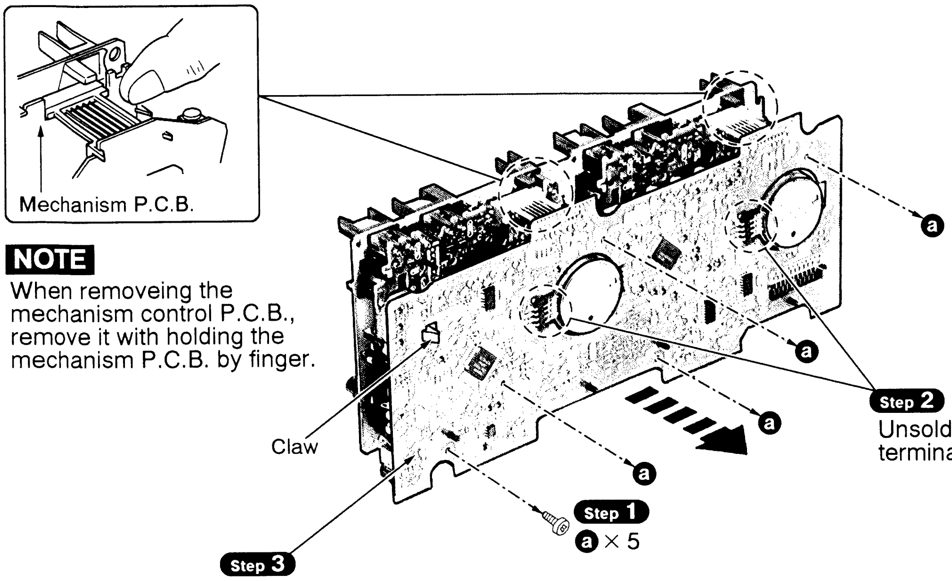
- Release the lug of cassette holder in the direction of arrow.

■ Open spring installation


Open spring

3. Replacement for the motor ass'y, capstan belt and winding belt

- Follow the **Step 1** ~ **Step 5** of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the **Step 1** ~ **Step 4** of the item 2 in checking procedure for each P.C.B. on page 5.



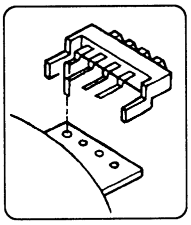
NOTE
When removeing the mechanism control P.C.B., remove it with holding the mechanism P.C.B. by finger.

Step 1
a × 5

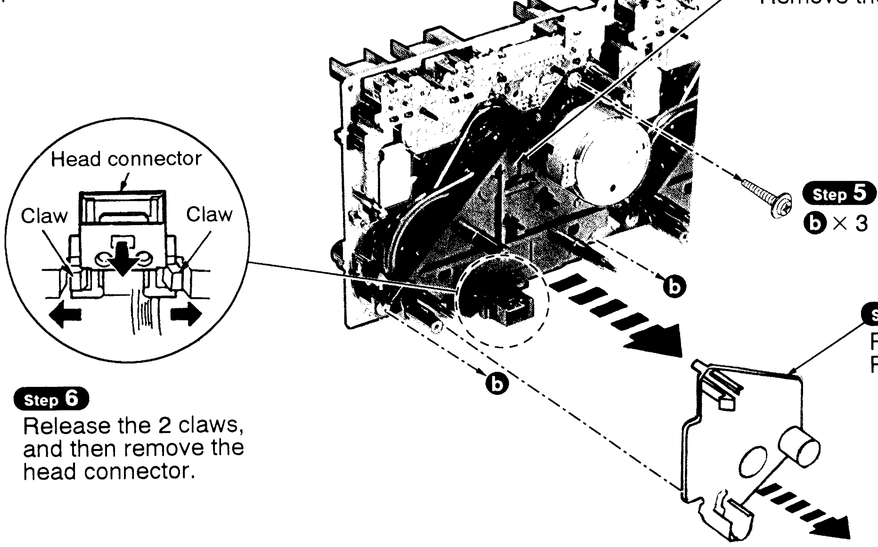
Step 2
Unsolder the terminals.

Step 3
Release the claw, and then remove the main P.C.B..

NOTE
Handle the connector with care so that the shape of terminals different from others.



NOTE
The illustration below shows DECK2 mechanism.
For DECK1 mechanism, perform the same procedure as DECK2.

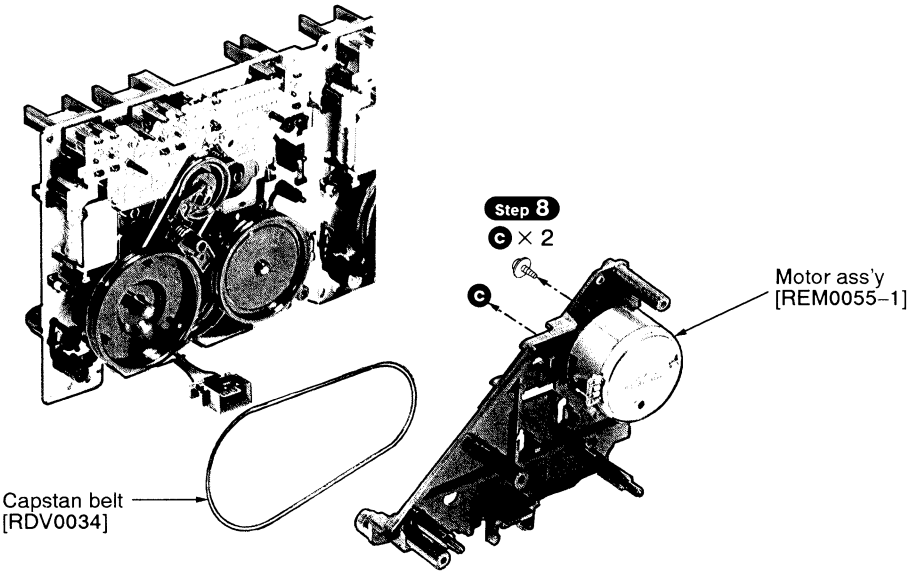


Step 4
Remove the P.C.B. support.

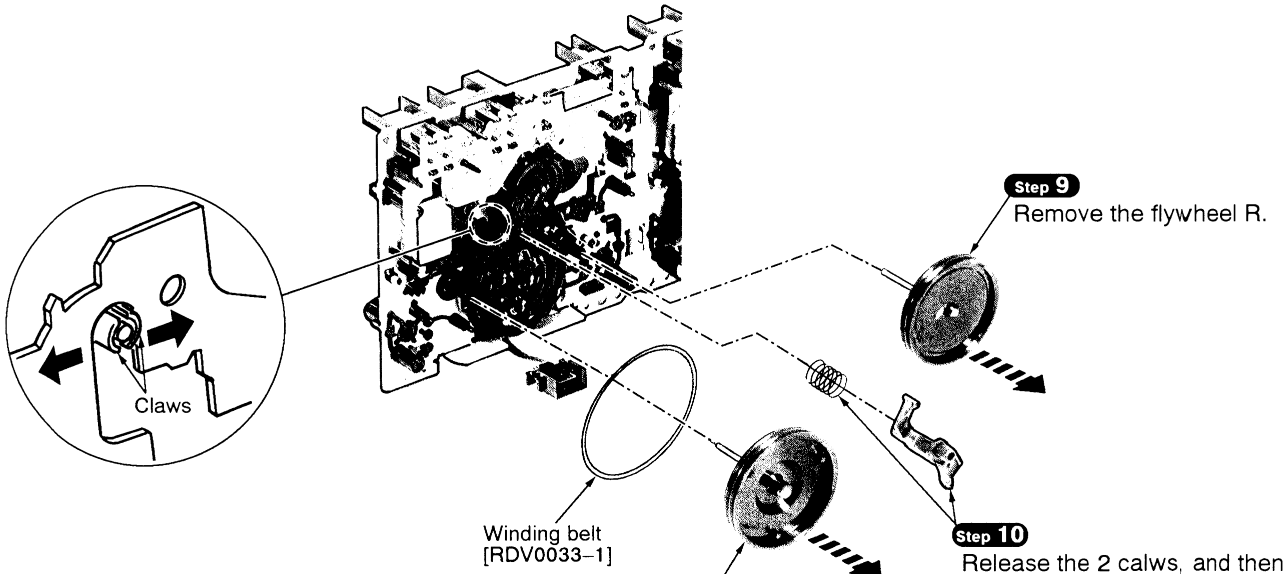
Step 5
b × 3

Step 6
Release the 2 claws, and then remove the head connector.

Step 7
Remove the sub chassis.


Motor ass'y
[REM0055-1]
Capstan belt
[RDV0034]
C

Step 8
C × 2

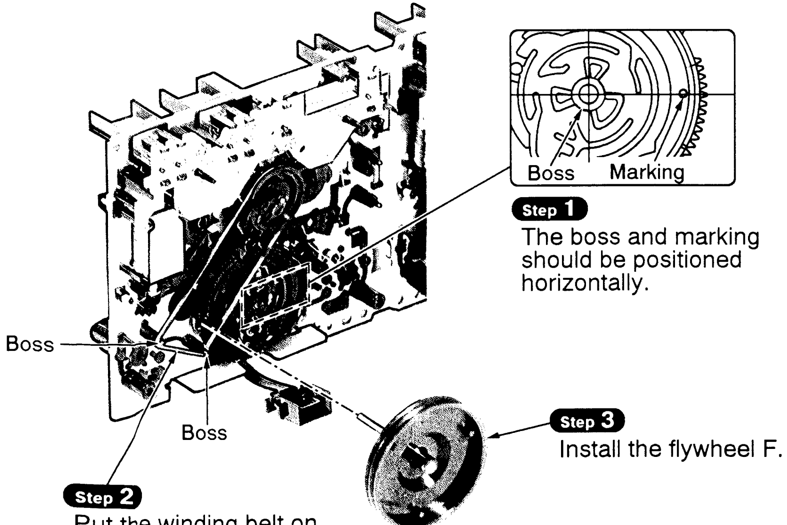

Claws
Winding belt
[RDV0033-1]

Step 9
Remove the flywheel R.

Step 10
Release the 2 calws, and then remove the winding belt and spring.

Step 11
Remove the flywheel F.

Installing the belt

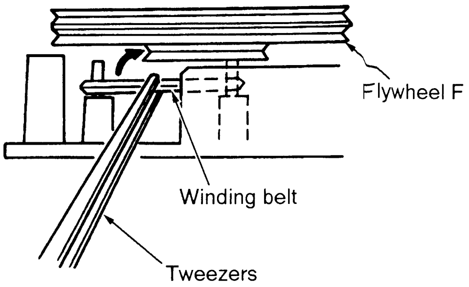

Boss
Marking
Boss
Boss

Step 1
The boss and marking should be positioned horizontally.

Step 2
Put the winding belt on the pulley temporarily.

Step 3
Install the flywheel F.

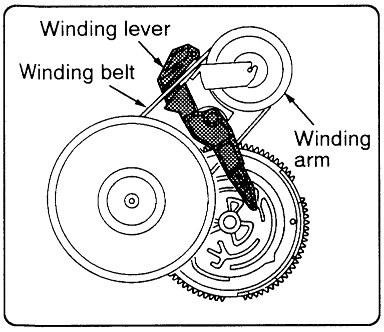
Step 4
Put the winding belt on the flywheel F.

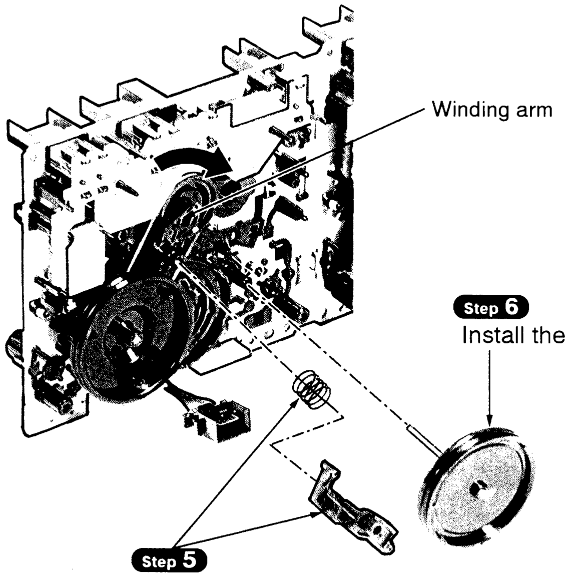

Flywheel F
Winding belt
Tweezers

NOTE
Take care not stick the grease on the belt.

NOTE

The winding lever should be positioned as shown below.


Winding lever
Winding belt
Winding arm


Winding arm

Step 6

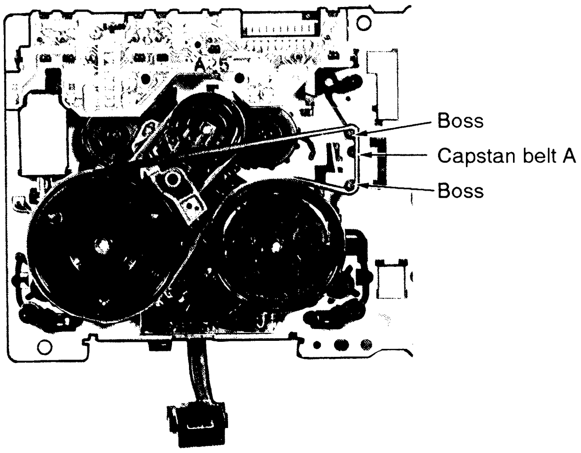
Install the flywheel R.

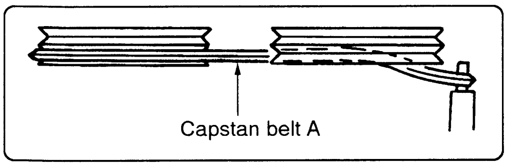
Step 5

Install the winding lever and spring while pressing the winding arm in the direction of arrow.
(The winding lever must be inserted completly and latched with claws.)

Step 7

Put the capstan belt A temporarily as shown below.


Boss
Capstan belt A
Boss

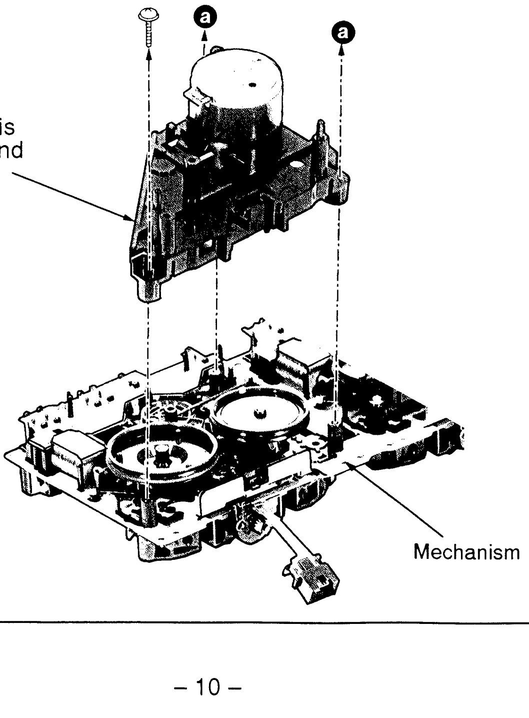

Capstan belt A

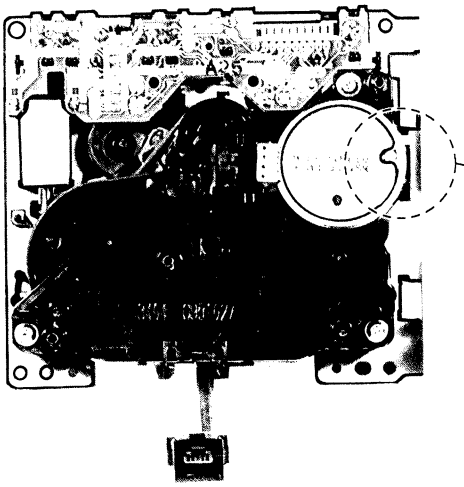
(Side view)

Step 9 ⓐ × 3

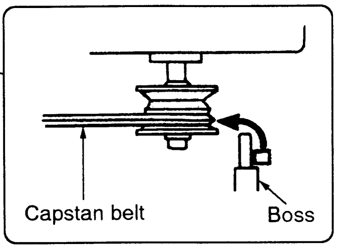
Step 8

Install the sub chassis to the mechanism, and then tighten screws.





Step 10
Put the capstan belt on the motor ass'y pulley.

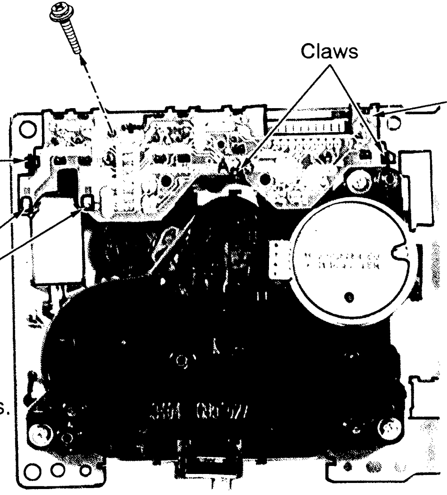


4. Replacement for the plunger ass'y and the parts mounted on mechanism P.C.B.

- Follow the **Step 1** ~ **Step 5** of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the **Step 1** ~ **Step 4** of the item 2 in checking procedure for each P.C.B. on page 5.
- Follow the **Step 1** ~ **Step 3** of the item 3 in main component replacement procedures on page 8.

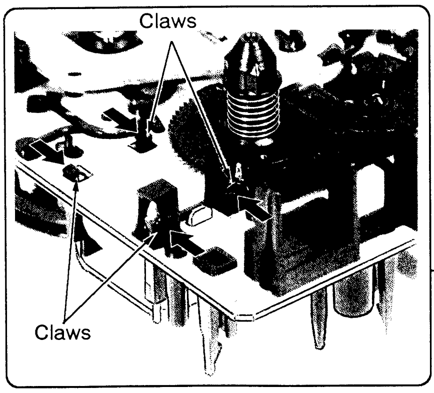
NOTE
The illustration below shows DECK2 mechanism. For DECK1 mechanism, perform the same procedure as DECK2.

Step 1 ⓐ

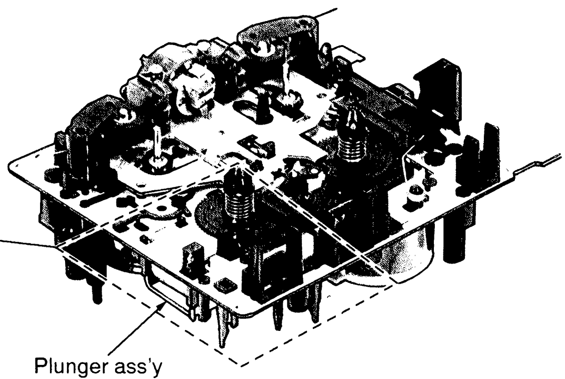


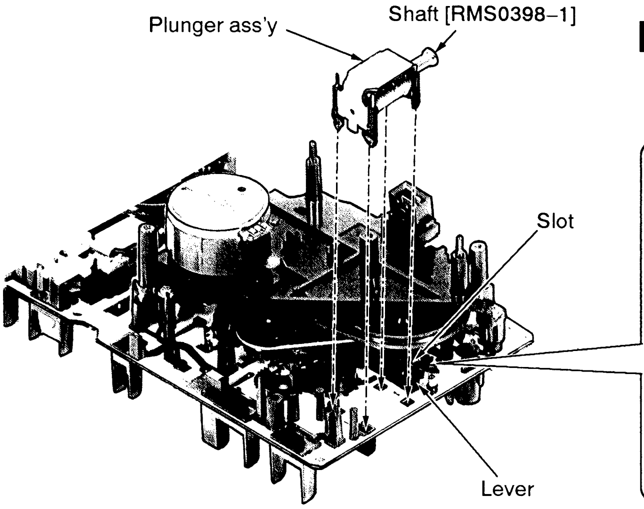
Step 3
Release the 3 claws, and then remove the mechanism P.C.B..

Step 2
Unsolder the terminals.



Step 4 Release the 4 claws.

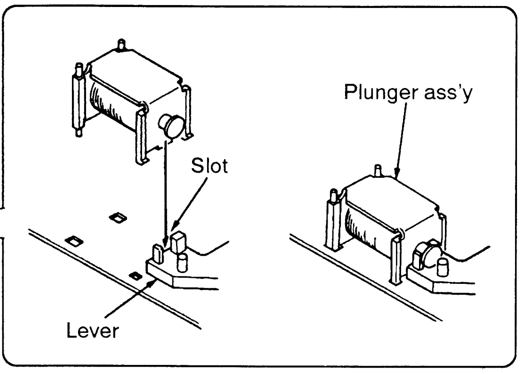



Plunger ass'y
Shaft [RMS0398-1]
Slot
Lever

NOTE

Notice for installing the plunger ass'y

- The shaft of plunger ass'y should be aligned with the slot of lever.


Plunger ass'y
Slot
Lever

5. Replacement for the head block and pinch roller ass'y

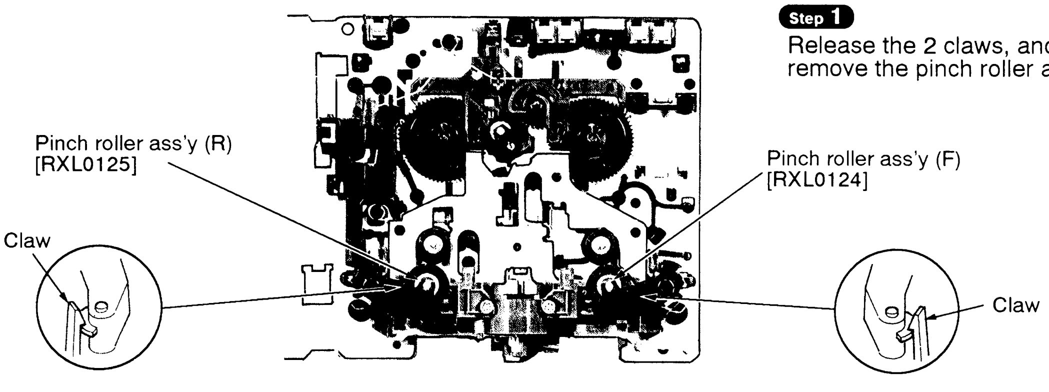
- Follow the **Step 1** ~ **Step 5** of the item 1 in checking procedure for each P.C.B. on pages 3 and 4.
- Follow the **Step 1** ~ **Step 4** of the item 2 in checking procedure for each P.C.B. on page 5.
- Follow the **Step 1** ~ **Step 3** of the item 3 in main component replacement procedures on page 8.

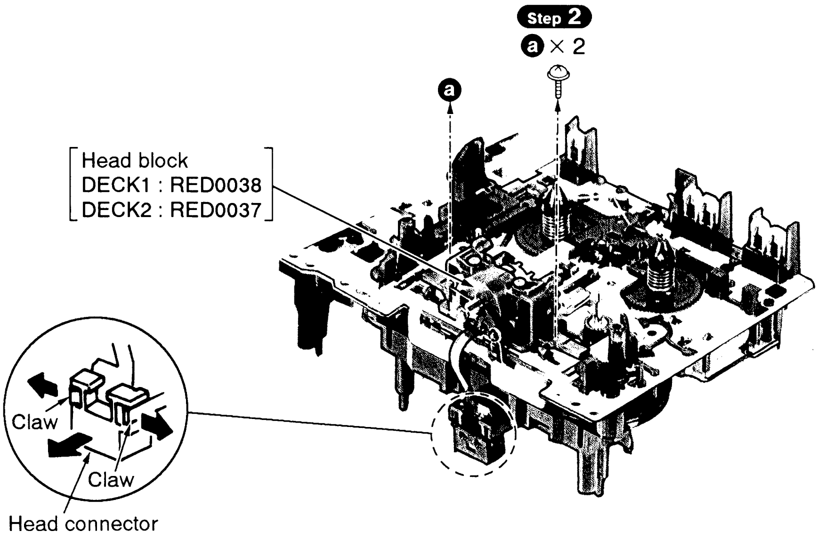
NOTE

The illustration below shows DECK2 mechanism. For DECK1 mechanism, perform the same procedure as DECK2.

Step 1

Release the 2 claws, and then remove the pinch roller ass'y (R),(F).


Pinch roller ass'y (R)
[RXL0125]
Claw
Pinch roller ass'y (F)
[RXL0124]
Claw


Step 2
ⓐ × 2
ⓐ
Head block
DECK1 : RED0038
DECK2 : RED0037
Claw
Claw
Head connector

Step 3

Release the 2 claws, and then remove the head connector.

■ To Supply Power Source

This unit RS-EH600 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig.1)

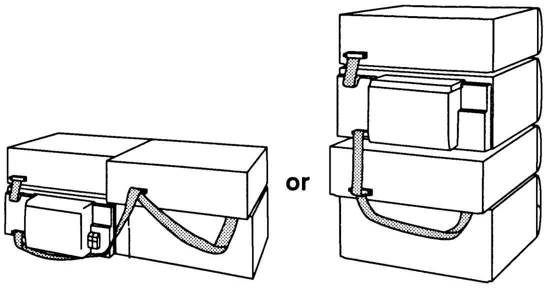


Fig. 1

When you have to test and service the unit RS-EH600 alone, use the following method to supply power source and operate the unit:

1. Short between J101 and J115. **A** (Fig.2)
2. Short J12, J14 and J114 with each other. **B** (Fig.2)
3. Connect an AF Oscillator to CN601 (10-pin) and **B**, then adjust the output to 100Hz, 5Vms. (Fig.3)
4. Connect a DC Power Supply to **A** and **B**, then adjust the output to 10V. (Fig.4)

Note : When operated alone, this unit automatically enter the TEST mode, causing either the DECK 1 or DECK 2 indicators to blink.
In TEST mode, please make sure whether the Dolby B indication is on or off by the illumination of DECK 1 cassette holder is lighted on or off.
(DECK 1 illumination lighted on: Dolby ON, illumination Lighted off: Dolby OFF)

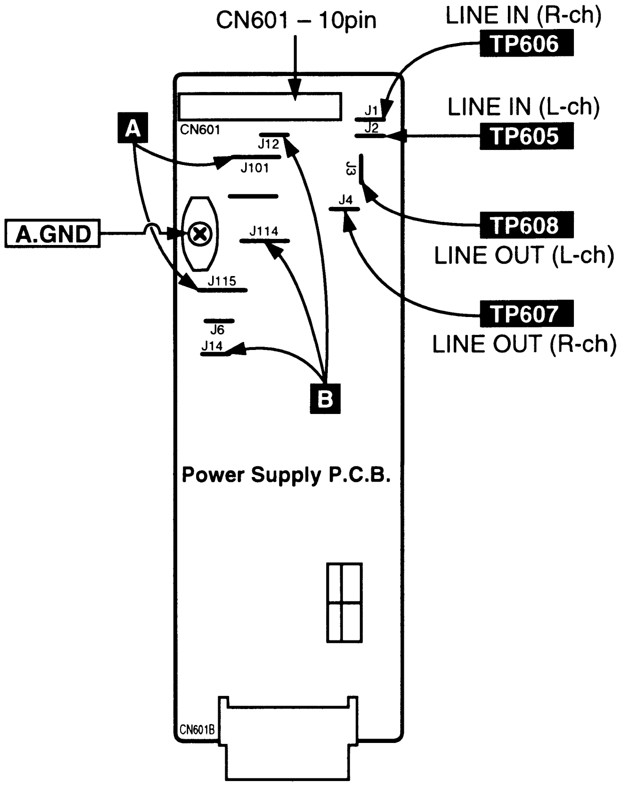

CN601 – 10pin
LINE IN (R-ch)
TP606
LINE IN (L-ch)
TP605
TP608
LINE OUT (L-ch)
TP607
LINE OUT (R-ch)
A
CN601
J1
J2
J12
J101
J3
J4
A.GND
J114
J115
J6
J14
B
Power Supply P.C.B.
CN601B

Fig. 2

■ To Check Signals

Connect an Oscilloscope or a built-in amplifier speaker between line output for L-ch (TP608) and A.GND , and line out for R-ch (TP607) and A.GND and check if the signals are outputting from this unit.

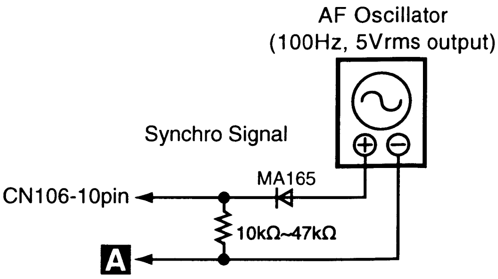

AF Oscillator
(100Hz, 5Vrms output)
Synchro Signal
⊕ ⊖
MA165
CN106-10pin
10kΩ~47kΩ
A

Fig. 3

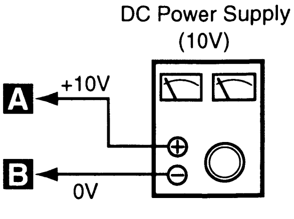

DC Power Supply
(10V)
A
+10V
⊕
B
⊖
0V

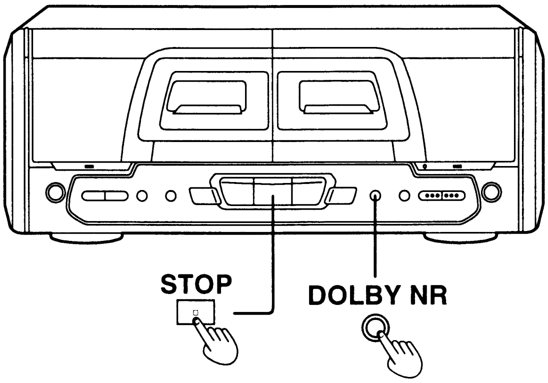
Fig. 4

■ Service Mode Function of Cassette Mechanism

This unit is equipped with a service mode function of cassette mechanism using the LED indicators [R. PLAY (◀), F. PLAY (▶)] and cassette holder illuminations [DECK 1, DECK 2].
Use this function during maintenance to check faults of the items below.

• Cassette tapes to be prepared

Metal tape:	Recorded music tape with only one erase-prevention tab intact (use middle portion of tape).
Normal tape: CrO2 tape:	Recorded music tape with both erase-prevention tabs intact (use middle portion of tape).



• Selecting Service Mode

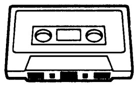
1. Turn on the power to the unit. (If RS-EH600 unit is removed from system, turn it on according to the procedure on page 13.)
2. Check that no tape is inserted in the cassette deck.
   Press the DOLBY NR button for about 2 seconds, and keep pressing it, also press the STOP button for about 2 seconds. (Service mode cannot be selected with a tape inserted in the cassette deck.)
3. The LED indicator for REC PAUSE flashes, the service mode has been activated.

• Deck 1 Mechanism Check

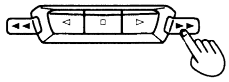
Use the Deck 1/2 select button to change the flashing Deck 2 indicator to Deck 1. (No change required if Deck 1 indicator already flashing.)

→ Open the Deck 1 cassette holder. (OPEN button)

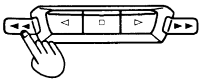
→ Insert a CrO2 tape into the Deck 1 and close the cassette holder.



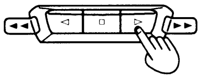
→ Press the TPS ▶▶ button. (Tape fast forwards for about 2 seconds then stops.)



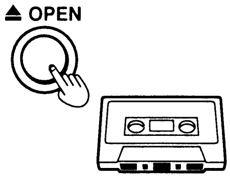
→ Press the ◀◀ TPS button. (Tape rewinds for about 2 seconds then stops.)



→ Press the PLAY button. (After TPS operation and check, the tape stops.)



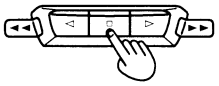
→ Open the Deck 1 cassette holder and replace the tape with a normal tape. (OPEN button)



→ Close the Deck 1 cassette holder.

→ Press the REC/PAUSE button. (No record operation.)

→ Press the STOP button. Fault items 1 to 7 can be checked as the four LED indicators turn on or off. (Refer to Table 1.) Each time the STOP button is pressed, the fault items are displayed in sequence.



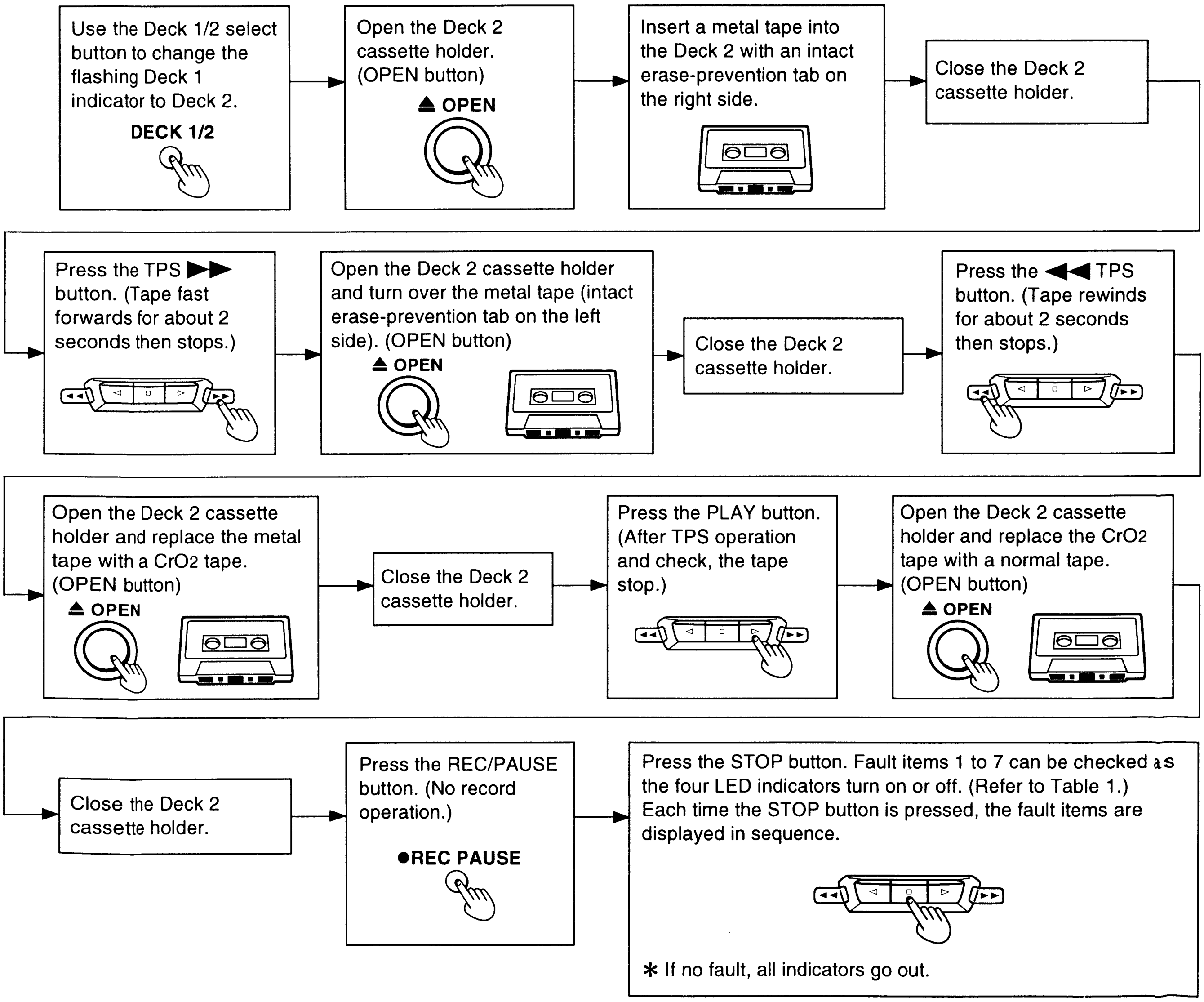
∗ If no fault, all indicators go out.

Table 1: Service Mode Diagnostic Items

No.	LED indicator and illumination status (on/off)				Fault location
	◀	DECK 1	DECK 2	▶	
1	—	—	●	—	MODE detect switch
2	—	●	—	—	REC prevention switch
3	—	●	●	—	Half detect switch
4	—	●	—	●	CrO2 tape detect switch
5	—	●	●	●	Metal tape detect switch
6	●	—	—	—	Reel pulse detect system (Hall IC, etc.)
7	●	—	●	—	TPS operation

Notes:
" ● " : ON
" — " : OFF
✻ If no fault, all indicators go out.

• Deck 2 Mechanism Check



Use the Deck 1/2 select button to change the flashing Deck 1 indicator to Deck 2.
DECK 1/2

Open the Deck 2 cassette holder. (OPEN button)
▲ OPEN

Insert a metal tape into the Deck 2 with an intact erase-prevention tab on the right side.

Close the Deck 2 cassette holder.

Press the TPS ▶▶ button. (Tape fast forwards for about 2 seconds then stops.)

Open the Deck 2 cassette holder and turn over the metal tape (intact erase-prevention tab on the left side). (OPEN button)
▲ OPEN

Close the Deck 2 cassette holder.

Press the ◀◀ TPS button. (Tape rewinds for about 2 seconds then stops.)

Open the Deck 2 cassette holder and replace the metal tape with a CrO2 tape. (OPEN button)
▲ OPEN

Close the Deck 2 cassette holder.

Press the PLAY button. (After TPS operation and check, the tape stop.)

Open the Deck 2 cassette holder and replace the CrO2 tape with a normal tape. (OPEN button)
▲ OPEN

Close the Deck 2 cassette holder.

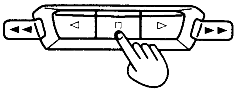
Press the REC/PAUSE button. (No record operation.)
●REC PAUSE

Press the STOP button. Fault items 1 to 7 can be checked as the four LED indicators turn on or off. (Refer to Table 1.) Each time the STOP button is pressed, the fault items are displayed in sequence.

✻ If no fault, all indicators go out.

• Exiting Self-Check Mode

1. Press the STOP button for more than 6 seconds. (Diagnostic contents stored in memory for both Deck 1 and 2 are erased.)
2. Remove the cassette tape from the cassette holder.
3. Turn off the unit.



■ Schematic Diagram

Page
A MAIN CIRCUIT .... 17~20
B MECHANISM CIRCUIT (DECK 1) 19
C MECHANISM CIRCUIT (DECK 2) 19
D POWER SUPPLY CIRCUIT 20
E OPERATION CIRCUIT 21

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S900** : Stop switch (■)
- **S901** : DECK 2 cassette holder open switch (⏏OPEN)
- **S902** : One-touch tape edit switch (TAPE EDIT/HIGH)
- **S903** : One-touch tape edit switch (TAPE EDIT/NOR)
- **S904** : Record pause switch (●REC PAUSE)
- **S905** : Dolby noise reduction switch (DOLBY NR)
- **S906** : Fast forward/tape program sensor switch (▶▶)
- **S907** : Forward side playback switch (▶)
- **S909** : Reverse side playback switch (◀)
- **S910** : Rewind/tape program sensor switch (◀◀)
- **S911** : Reverse mode select switch (REV MODE)
- **S912** : DECK 1/DECK 2 select switch (DECK 1/2)
- **S913** : Counter display switch (COUNTER DISPLAY)
- **S914** : Counter reset switch (COUNTER RESET)
- **S915** : DECK 1 cassette holder open switch (⏏OPEN)
- **S951** : DECK 1 mode detect switch
- **S952** : DECK 1 half detect switch
- **S953** : DECK 1 CrO_2 tape detect switch
- **S971** : DECK 2 mode detect switch
- **S972** : DECK 2 half detect switch
- **S973** : DECK 2 CrO_2 tape detect switch
- **S974** : DECK 2 reverse side record prevention tab detect switch
- **S975** : DECK 2 forward side record prevention tab detect switch
- **S976** : DECK 2 METAL tape detect switch
- **VR101** : DECK 1 Playback gain adjustment VR (R-ch)
- **VR102** : DECK 2 Playback gain adjustment VR (L-ch)
- **VR103** : DECK 2 Playback gain adjustment VR (R-ch)
- **VR104** : DECK 1 Playback gain adjustment VR (L-ch)
- **VR801** : DECK 1 tape speed adjustment VR (normal)
- **VR802** : DECK 2 tape speed adjustment VR (high)
- **VR803** : DECK 2 tape speed adjustment VR (normal)

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

  No mark : Playback ( ) : Recording

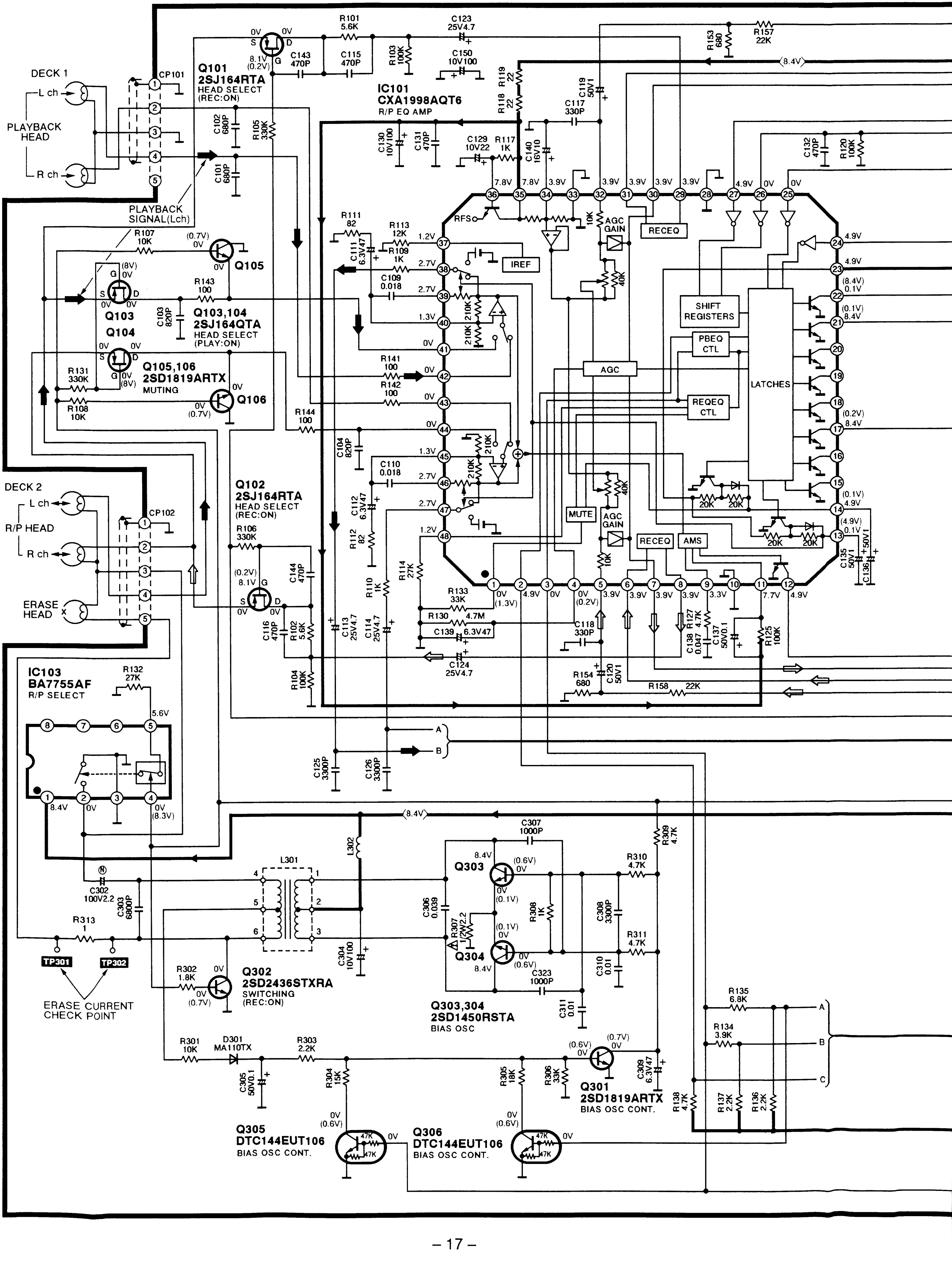
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

- **Voltage and signal line**

  → : Positive voltage line ➡ : Playback signal Line ⇨ : Recording signal Line

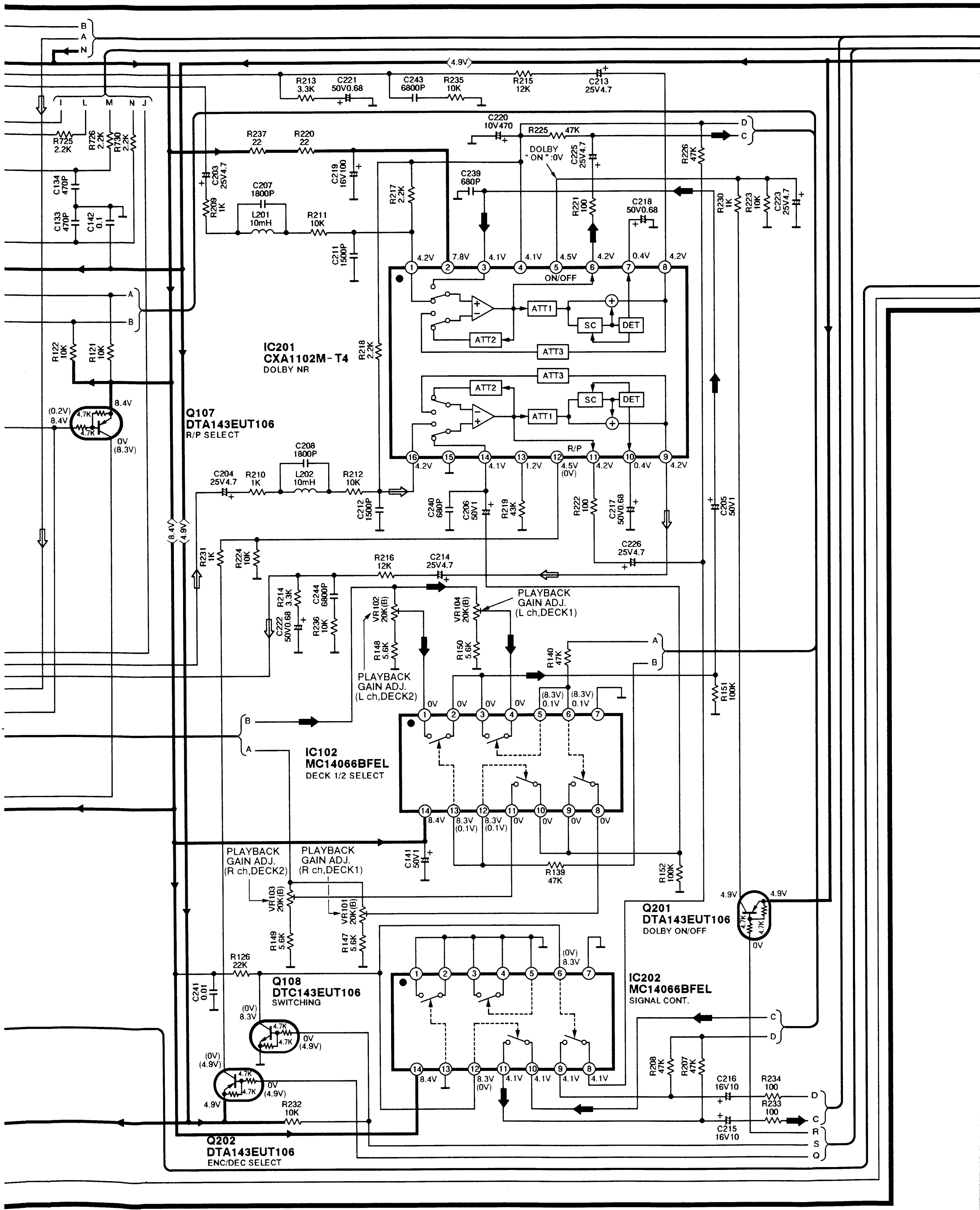
A MAIN CIRCUIT (P.C.Board:on page 22)


DECK 1
L ch
PLAYBACK HEAD
R ch
CP101
PLAYBACK SIGNAL(Lch)
Q101
2SJ164RTA
HEAD SELECT
(REC:ON)
R101 5.6K
C143 470P
C115 470P
R103 100K
C123 25V4.7
C150 10V100
IC101
CXA1998AQT6
R/P EQ AMP
C102 680P
R105 330K
C101 680P
C130 10V100
C131 470P
C129 10V22
R117 1K
C140 16V10
R118 22
R119 22
C117 330P
C119 50V1
R153 680
R157 22K
(8.4V)
C132 470P
R120 100K
R107 10K
Q105
R143 100
Q103
Q104
C103 820P
Q103,104
2SJ164QTA
HEAD SELECT
(PLAY:ON)
Q105,106
2SD1819ARTX
MUTING
R131 330K
R108 10K
Q106
R111 82
R113 12K
R109 1K
C111 6.3V47
C109 0.018
R141 100
R142 100
R144 100
C104 820P
C110 0.018
C112 6.3V47
R112 82
R114 27K
R110 1K
RFS
IREF
AGC GAIN
RECEQ
SHIFT REGISTERS
PBEQ CTL
AGC
REQEQ CTL
LATCHES
MUTE
AMS
10K
40K
210K
20K
DECK 2
R/P HEAD
ERASE HEAD
CP102
Q102
2SJ164RTA
HEAD SELECT
(REC:ON)
R106 330K
C144 470P
C116 470P
R102 5.6K
R104 100K
C113 25V4.7
C114 25V4.7
R133 33K
R130 4.7M
C139 6.3V47
C124 25V4.7
C118 330P
R154 680
C120 50V1
R158 22K
R127 4.7K
C138 0.047
C137 50V0.1
R125 100K
C135 50V1
C136 50V1
C125 3300P
C126 3300P
A
B
C
IC103
BA7755AF
R/P SELECT
R132 27K
5.6V
L301
L302
C302 100V2.2
C303 6800P
R313 1
TP301
TP302
ERASE CURRENT CHECK POINT
C306 0.039
C304 10V100
R302 1.8K
Q302
2SD2436STXRA
SWITCHING
(REC:ON)
C307 1000P
Q303
Q304
R307 1/2W2.2
R308 1K
C308 3300P
R309 4.7K
R310 4.7K
R311 4.7K
C310 0.01
C323 1000P
C311 0.01
Q303,304
2SD1450RSTA
BIAS OSC
R301 10K
D301 MA110TX
R303 2.2K
C305 50V0.1
R304 15K
R305 18K
R306 33K
C309 6.3V47
Q301
2SD1819ARTX
BIAS OSC CONT.
Q305
DTC144EUT106
BIAS OSC CONT.
Q306
DTC144EUT106
BIAS OSC CONT.
47K
R135 6.8K
R134 3.9K
R138 4.7K
R137 2.2K
R136 2.2K

: Positive voltage line

: Playback signal Line

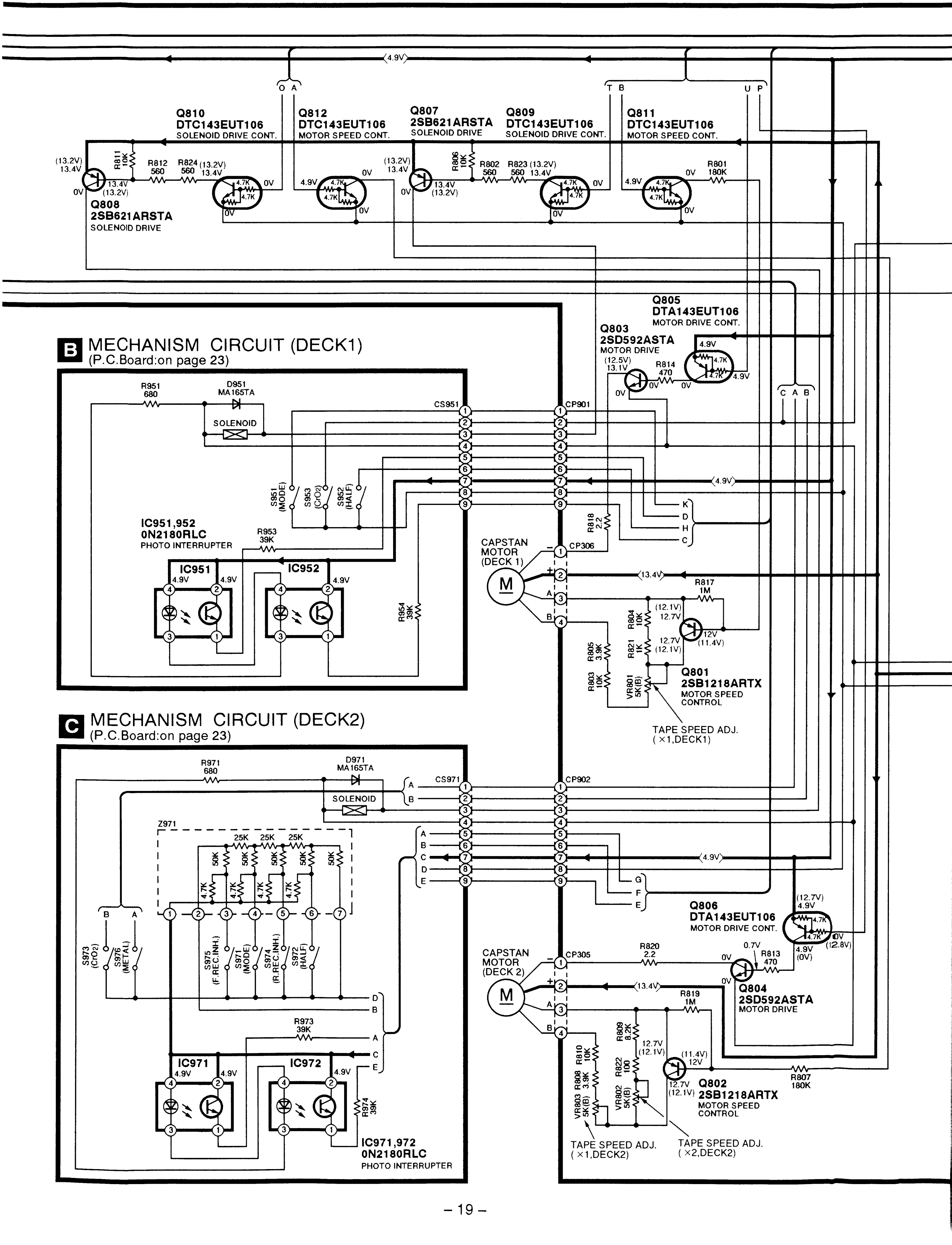
: Recording signal Line


B
A
N
I L M N J
R725 2.2K
R726 2.2K
R730 2.2K
C134 470P
C133 470P
C142 0.1
4.9V
R213 3.3K
C221 50V0.68
C243 6800P
R235 10K
R215 12K
C213 25V4.7
C220 10V470
R225 47K
D
C
DOLBY "ON":0V
C225 25V4.7
R226 47K
R237 22
R220 22
C203 25V4.7
R209 1K
C207 1800P
L201 10mH
R211 10K
C219 16V100
C211 1500P
R217 2.2K
C239 680P
R221 100
C218 50V0.68
R230 1K
R223 10K
C223 25V4.7
4.2V 7.8V 4.1V 4.1V 4.5V 4.2V 0.4V 4.2V
ON/OFF
ATT1
SC
DET
ATT2
ATT3
IC201
CXA1102M-T4
DOLBY NR
R218 2.2K
R122 10K
R121 10K
8.4V
(0.2V)
8.4V
4.7K
4.7K
0V
(8.3V)
Q107
DTA143EUT106
R/P SELECT
C208 1800P
C204 25V4.7
R210 1K
L202 10mH
R212 10K
C212 1500P
R/P
4.2V 4.1V 1.2V 4.5V (0V) 4.2V 0.4V 4.2V
C240 680P
C206 50V1
R219 43K
R222 100
C217 50V0.68
C205 50V1
8.4V
4.9V
R231 1K
R224 10K
C226 25V4.7
R216 12K
C214 25V4.7
R214 3.3K
C244 6800P
C222 50V0.68
R236 10K
VR102 20K(B)
VR104 20K(B)
PLAYBACK GAIN ADJ. (L ch,DECK1)
R148 5.6K
R150 5.6K
R140 47K
PLAYBACK GAIN ADJ. (L ch,DECK2)
0V 0V 0V 0V (8.3V) 0.1V (8.3V) 0.1V
R151 100K
IC102
MC14066BFEL
DECK 1/2 SELECT
8.4V 8.3V (0.1V) 8.3V (0.1V) 0V 0V 0V 0V
C141 50V1
R139 47K
R152 100K
PLAYBACK GAIN ADJ. (R ch,DECK2)
PLAYBACK GAIN ADJ. (R ch,DECK1)
VR103 20K(B)
VR101 20K(B)
R149 5.6K
R147 5.6K
4.9V
4.9V
Q201
DTA143EUT106
DOLBY ON/OFF
0V
R126 22K
C241 0.01
Q108
DTC143EUT106
SWITCHING
(0V) 8.3V
0V (4.9V)
(0V) 8.3V
IC202
MC14066BFEL
SIGNAL CONT.
(0V) (4.9V)
0V (4.9V)
4.9V
R232 10K
8.4V 8.3V (0V) 4.1V 4.1V 4.1V 4.1V
R208 47K
R207 47K
C216 16V10
R234 100
R233 100
C215 16V10
R
S
Q
Q202
DTA143EUT106
ENC/DEC SELECT

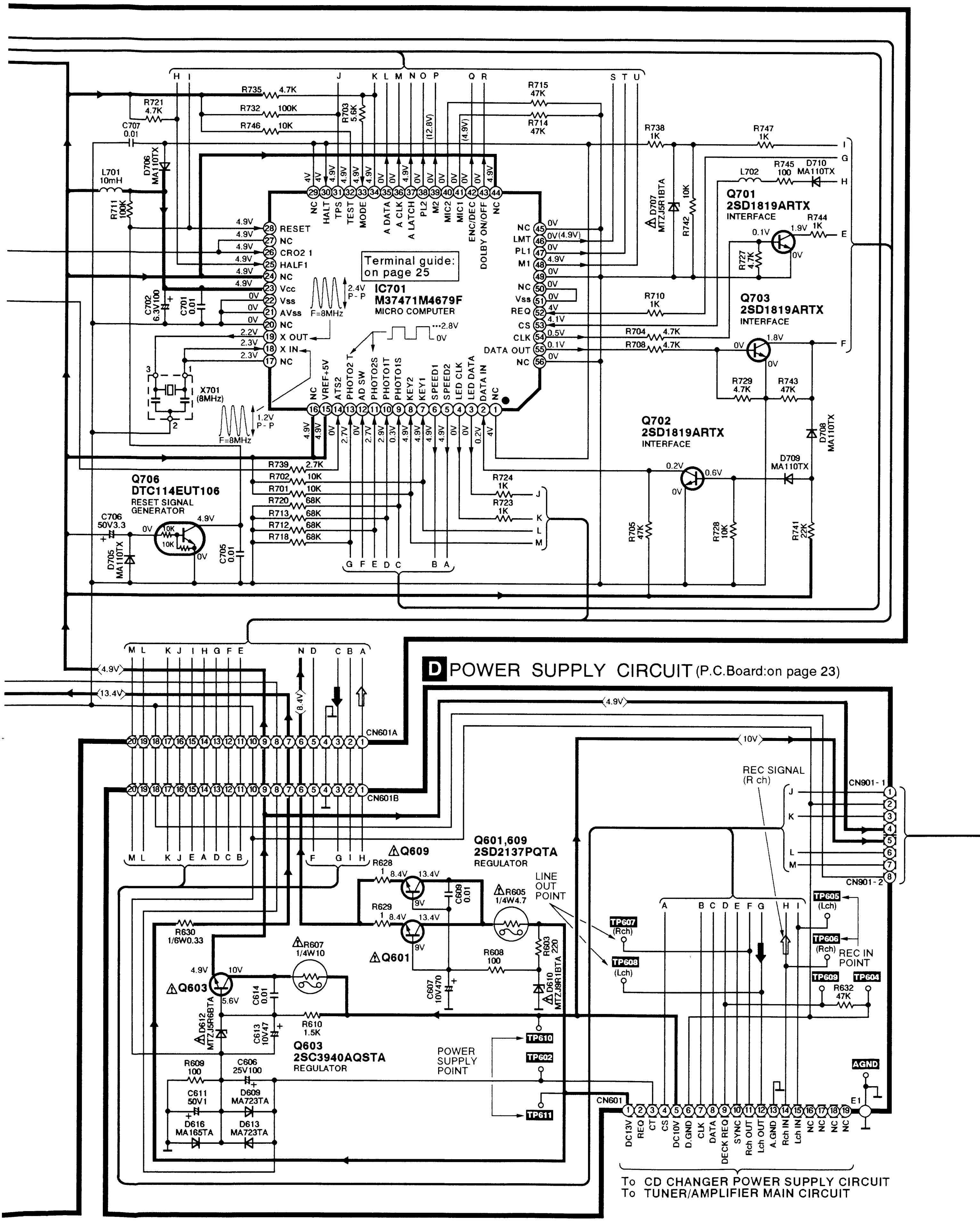
A MAIN CIRCUIT (P.C.Board:on page 22)

B MECHANISM CIRCUIT (DECK1) (P.C.Board:on page 23)

C MECHANISM CIRCUIT (DECK2) (P.C.Board:on page 23)

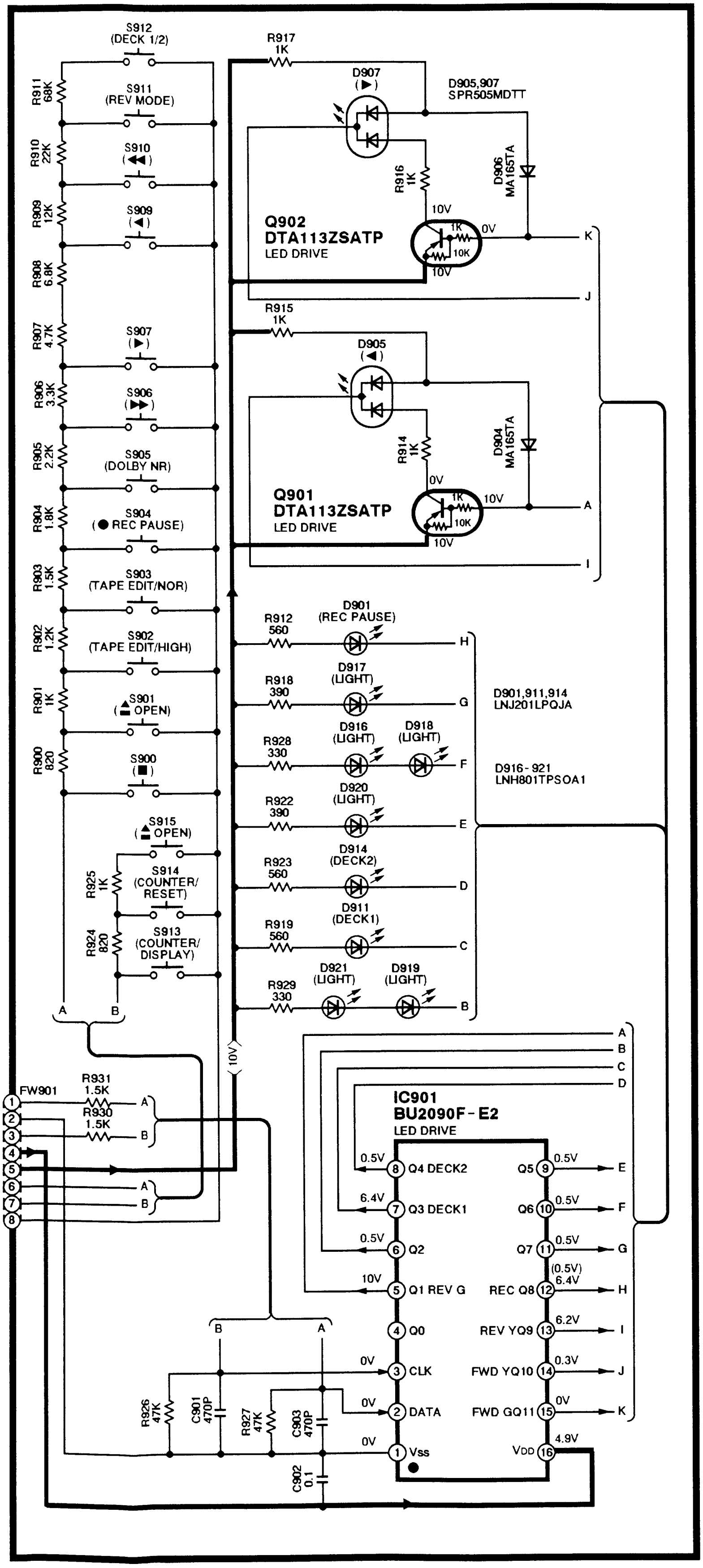

A MAIN CIRCUIT (P.C.Board:on page 22)
4.9V
O A
T B
U P
Q810
DTC143EUT106
SOLENOID DRIVE CONT.
Q812
DTC143EUT106
MOTOR SPEED CONT.
Q807
2SB621ARSTA
SOLENOID DRIVE
Q809
DTC143EUT106
SOLENOID DRIVE CONT.
Q811
DTC143EUT106
MOTOR SPEED CONT.
Q808
2SB621ARSTA
SOLENOID DRIVE
R811 10K
R812 560
R824 560
R806 10K
R802 560
R823 560
R801 180K
(13.2V) 13.4V
13.4V (13.2V)
4.7K
0V
4.9V
Q805
DTA143EUT106
MOTOR DRIVE CONT.
Q803
2SD592ASTA
MOTOR DRIVE
(12.5V) 13.1V
R814 470
C A B
B MECHANISM CIRCUIT (DECK1)
(P.C.Board:on page 23)
R951 680
D951 MA165TA
SOLENOID
CS951
CP901
S951 (MODE)
S953 (CrO2)
S952 (HALF)
IC951,952
0N2180RLC
PHOTO INTERRUPTER
R953 39K
IC951
IC952
R954 39K
K
D
H
C
R818 2.2
CAPSTAN MOTOR (DECK 1)
CP306
M
13.4V
R817 1M
R804 10K
R821 1K
R805 3.9K
R803 10K
VR801 5K(B)
(12.1V) 12.7V
12.7V (12.1V)
12V (11.4V)
Q801
2SB1218ARTX
MOTOR SPEED CONTROL
TAPE SPEED ADJ. (×1,DECK1)
C MECHANISM CIRCUIT (DECK2)
(P.C.Board:on page 23)
R971 680
D971 MA165TA
SOLENOID
CS971
CP902
Z971
25K
50K
4.7K
S973 (CrO2)
S976 (METAL)
S975 (F.REC.INH.)
S971 (MODE)
S974 (R.REC.INH.)
S972 (HALF)
R973 39K
IC971
IC972
R974 39K
IC971,972
0N2180RLC
PHOTO INTERRUPTER
G
F
E
Q806
DTA143EUT106
MOTOR DRIVE CONT.
(12.7V) 4.9V
0V (12.8V)
4.9V (0V)
0.7V
R820 2.2
R813 470
Q804
2SD592ASTA
MOTOR DRIVE
CAPSTAN MOTOR (DECK 2)
CP305
R819 1M
R809 8.2K
R810 10K
R808 3.9K
R822 100
VR803 5K(B)
VR802 5K(B)
12.7V (12.1V)
(11.4V) 12V
12.7V (12.1V)
Q802
2SB1218ARTX
MOTOR SPEED CONTROL
R807 180K
TAPE SPEED ADJ. (×1,DECK2)
TAPE SPEED ADJ. (×2,DECK2)

D POWER SUPPLY CIRCUIT (P.C.Board:on page 23)


H I J K L M N O P Q R S T U
R735 4.7K
R721 4.7K
R732 100K
R703 5.6K
R746 10K
C707 0.01
R715 47K
R714 47K
R738 1K
R747 1K
L701 10mH
D706 MA110TX
R711 100K
D707 MTZJ5R1BTA
R742 10K
L702
R745 100
D710 MA110TX
Q701 2SD1819ARTX INTERFACE
R744 1K
R727 4.7K
Terminal guide: on page 25
IC701 M37471M4679F MICRO COMPUTER
2.4V P-P
F=8MHz
RESET
NC
CRO2 1
HALF1
Vcc
Vss
AVss
X OUT
X IN
HALT
TPS
TEST
MODE
A DATA
A CLK
A LATCH
PL2
M2
MIC2
MIC1
ENC/DEC
DOLBY ON/OFF
LMT
PL1
M1
REQ
CS
CLK
DATA OUT
R710 1K
Q703 2SD1819ARTX INTERFACE
R704 4.7K
R708 4.7K
R729 4.7K
R743 47K
C702 6.3V100
C701 0.01
X701 (8MHz)
1.2V P-P
F=8MHz
VREF+5V
ATS2
PHOTO2 T
AD SW
PHOTO2S
PHOTO1T
PHOTO1S
KEY2
KEY1
SPEED1
SPEED2
LED CLK
LED DATA
DATA IN
Q702 2SD1819ARTX INTERFACE
D708 MA110TX
D709 MA110TX
Q706 DTC114EUT106 RESET SIGNAL GENERATOR
R739 2.7K
R702 10K
R701 10K
R720 68K
R713 68K
R712 68K
R718 68K
R724 1K
R723 1K
C706 50V3.3
D705 MA110TX
C705 0.01
R705 47K
R728 10K
R741 22K
G F E D C B A
M L K J I H G F E N D C B A
(4.9V)
(13.4V)
(8.4V)
(10V)
CN601A
CN601B
M L K J E A D C B F G I H
Q609
Q601,609 2SD2137PQTA REGULATOR
R628
C609 0.01
R605 1/4W4.7
LINE OUT POINT
REC SIGNAL (R ch)
CN901-1
CN901-2
R629
R630 1/6W0.33
R607 1/4W10
Q601
R608 100
R603 220
D610 MTZJ9R1BTA
C607 10V470
TP607 (Rch)
TP608 (Lch)
TP605 (Lch)
TP606 (Rch)
REC IN POINT
TP609
TP604
R632 47K
Q603
D612 MTZJ5R6BTA
C614 0.01
C613 10V47
R610 1.5K
Q603 2SC3940AQSTA REGULATOR
POWER SUPPLY POINT
TP610
TP602
TP611
R609 100
C606 25V100
C611 50V1
D609 MA723TA
D616 MA165TA
D613 MA723TA
CN601
AGND
E1
DC13V
REQ
CT
CS
DC10V
D.GND
CLK
DATA
DECK REQ
SYNC
Rch OUT
Lch OUT
A.GND
Rch IN
Lch IN
NC

To CD CHANGER POWER SUPPLY CIRCUIT
To TUNER/AMPLIFIER MAIN CIRCUIT

E OPERATION CIRCUIT(P.C.Board:on page 23)


S912 (DECK 1/2)
S911 (REV MODE)
S910 (◀◀)
S909 (◀)
S907 (▶)
S906 (▶▶)
S905 (DOLBY NR)
S904 (● REC PAUSE)
S903 (TAPE EDIT/NOR)
S902 (TAPE EDIT/HIGH)
S901 (▲ OPEN)
S900 (■)
S915 (▲ OPEN)
S914 (COUNTER/ RESET)
S913 (COUNTER/ DISPLAY)
R911 68K
R910 22K
R909 12K
R908 6.8K
R907 4.7K
R906 3.3K
R905 2.2K
R904 1.8K
R903 1.5K
R902 1.2K
R901 1K
R900 820
R925 1K
R924 820
R917 1K
D907 (▶)
D905,907 SPR505MDTT
R916 1K
D906 MA165TA
Q902 DTA113ZSATP LED DRIVE
10V
1K
10K
0V
10V
R915 1K
D905 (◀)
R914 1K
D904 MA165TA
Q901 DTA113ZSATP LED DRIVE
0V
10V
10V
R912 560
D901 (REC PAUSE)
R918 390
D917 (LIGHT)
R928 330
D916 (LIGHT)
D918 (LIGHT)
R922 390
D920 (LIGHT)
R923 560
D914 (DECK2)
R919 560
D911 (DECK1)
R929 330
D921 (LIGHT)
D919 (LIGHT)
D901,911,914 LNJ201LPQJA
D916-921 LNH801TPSOA1
K J I H G F E D C B A
(10V)
FW901
R931 1.5K
R930 1.5K
IC901 BU2090F-E2 LED DRIVE
0.5V ⑧ Q4 DECK2
6.4V ⑦ Q3 DECK1
0.5V ⑥ Q2
10V ⑤ Q1 REV G
④ Q0
0V ③ CLK
0V ② DATA
0V ① Vss
Q5 ⑨ 0.5V
Q6 ⑩ 0.5V
Q7 ⑪ 0.5V
REC Q8 ⑫ (0.5V) 6.4V
REV YQ9 ⑬ 6.2V
FWD YQ10 ⑭ 0.3V
FWD GQ11 ⑮ 0V
VDD ⑯ 4.9V
R926 47K
C901 470P
R927 47K
C903 470P
C902 0.1

➔ : Positive voltage line

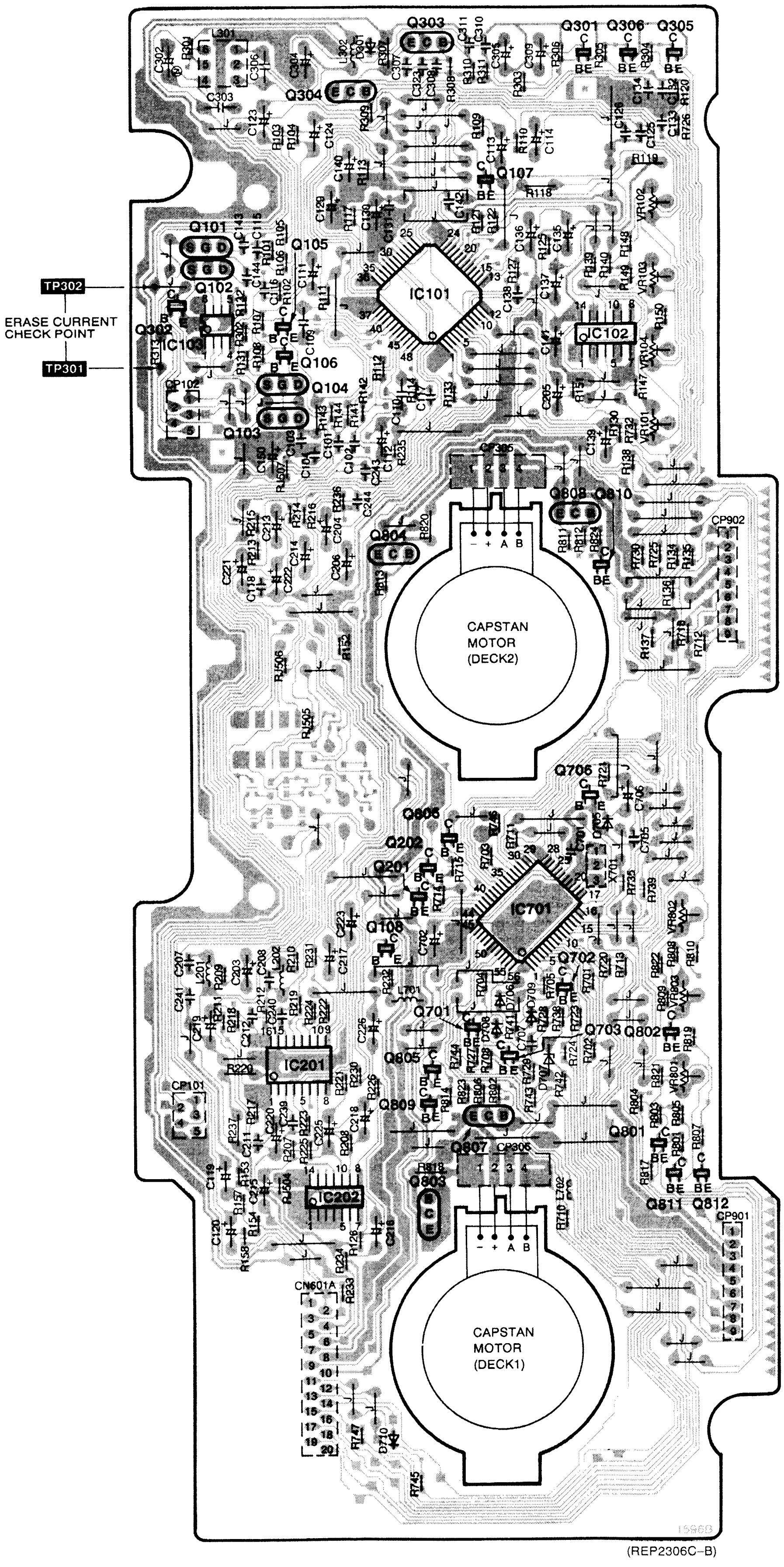
➡ : Playback signal Line

⇨ : Recording signal Line

■ Printed Circuit Board Diagram

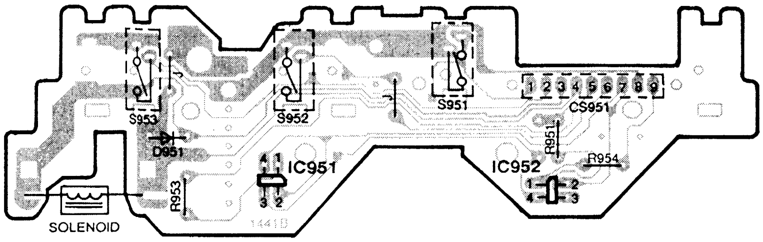
- This circuit board diagram may be modified at any time with the development of new technology.

A MAIN P.C.B.


Q303
Q301
Q306
Q305
L301
C302
R301
C306
C303
Q304
C304
L302
D301
R307
C307
C323
C308
R308
R309
C311
C310
R310
R311
C305
C309
R303
R306
R305
R304
C134
C132
R120
C123
R103
R104
C124
R109
R110
C113
C114
C126
C125
C133
R726
R119
C140
R113
Q107
R118
VR102
C129
R117
C130
C131
C121
R121
R122
C136
R127
C135
R139
R140
R148
Q101
C143
C115
R105
R101
C144
Q105
C111
R106
R102
C116
R111
IC101
25
24
20
36
37
40
45
48
15
13
12
10
5
C138
C137
R149
VR103
TP302
Q102
R112
R107
R108
C109
IC102
14
10
8
R150
ERASE CURRENT CHECK POINT
Q302
R313
IC103
R131
R302
Q106
R112
C141
C205
R151
R147
VR104
TP301
IC102
Q104
R142
R114
R133
R143
R144
R141
C110
C117
R130
R732
VR101
Q103
C139
C150
C103
C101
C102
C112
R235
CP305
R138
R1507
C104
C243
C244
Q808
Q810
R215
C213
R214
R216
R236
C204
Q804
R820
R811
R812
R824
CP902
- + A B
R730
R725
R134
R135
C221
C118
R213
C214
C222
C206
R813
R136
CAPSTAN MOTOR (DECK2)
R137
R716
R712
R152
RJ506
RJ505
Q706
R721
C706
Q806
R745
R711
C705
Q202
R703
C701
Q201
R715
X701
R735
R739
R714
IC701
VR802
Q108
C223
C702
C217
C207
L201
R209
C203
C208
R210
R231
C241
C219
R211
R218
C212
R212
C240
R219
R224
R222
R232
L701
R704
R706
D709
R705
Q702
R729
R713
R822
R808
R810
Q701
D708
R728
R738
R723
R702
Q703
Q802
R809
VR801
C226
IC201
Q805
R744
R727
R709
C703
R742
R724
R819
R220
R221
R230
R226
C218
R814
R823
R806
R802
R743
R804
R821
VR803
CP101
Q809
R237
R217
C220
C239
C211
R207
R225
R223
C225
R208
Q807
CP306
R816
Q801
R803
R805
R801
R807
C119
R153
C215
RJ504
IC202
Q803
L702
R710
R817
Q811
Q812
CP901
C120
R157
R154
R158
R128
C216
R234
CN601A
R233
CAPSTAN MOTOR (DECK1)
R747
D710
R745

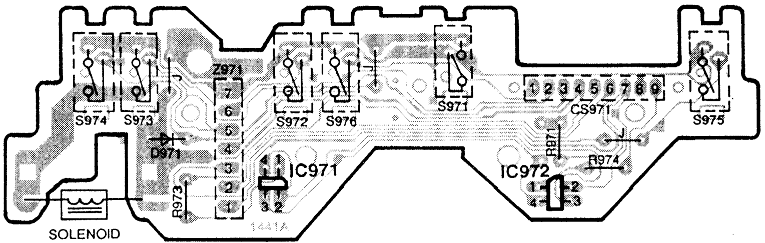
(REP2306C–B)

B MECHANISM P.C.B. (DECK1)


S953
S952
S951
CS951
1 2 3 4 5 6 7 8 9
D951
IC951
IC952
R951
R954
R953
SOLENOID
1441B

(REP2132B)

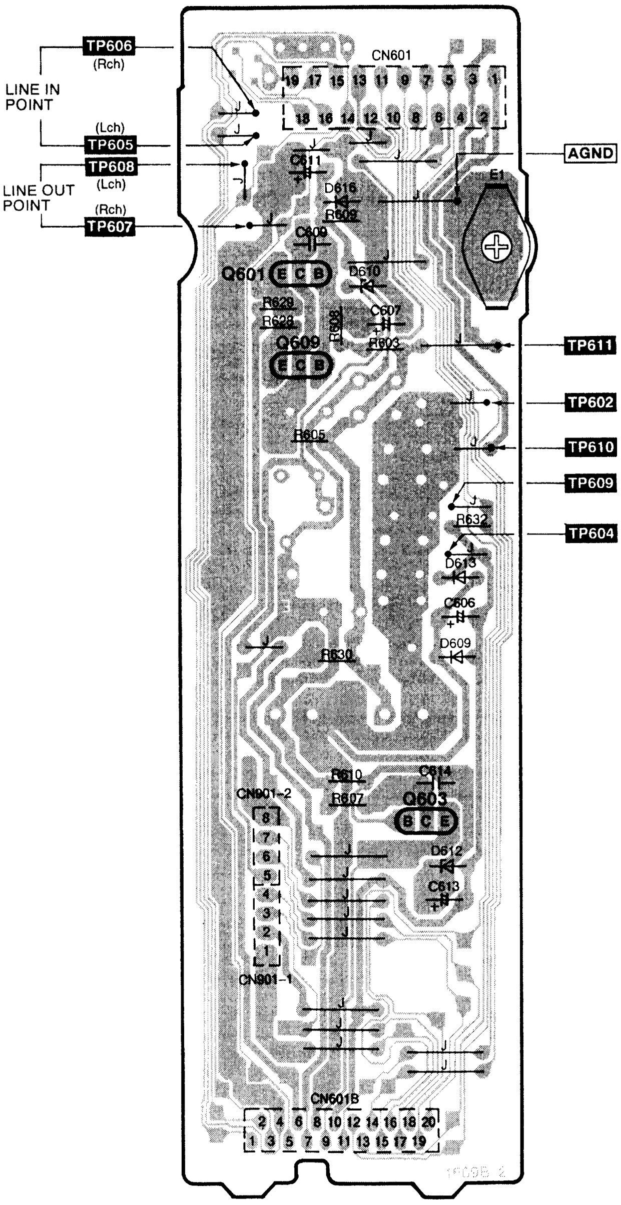
C MECHANISM P.C.B. (DECK2)


S974
S973
Z971
S972
S976
S971
CS971
1 2 3 4 5 6 7 8 9
S975
D971
IC971
IC972
R971
R974
R973
SOLENOID
1441A

(REP2131D)

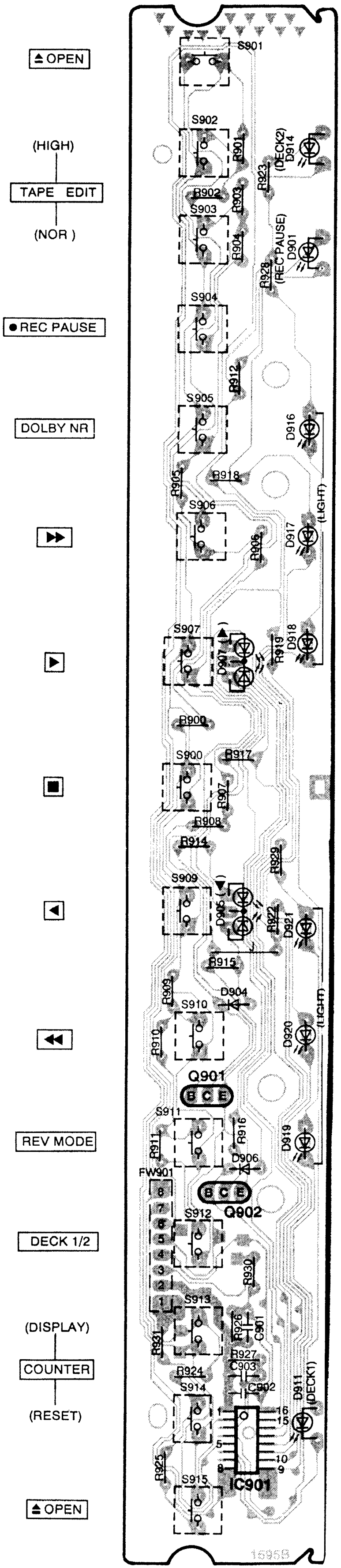
D POWER SUPPLY P.C.B.

To CD CHANGER POWER SUPPLY P.C.B.
To TUNER/AMPLIFIER MAIN P.C.B.


TP606
(Rch)
LINE IN
POINT
(Lch)
TP605
TP608
LINE OUT
POINT
(Lch)
(Rch)
TP607
CN601
AGND
E1
C611
D616
R609
C609
Q601
E C B
D610
R629
R628
R608
C607
R603
Q609
E C B
TP611
TP602
R605
TP610
TP609
R632
TP604
D613
C606
D609
R630
R610
C614
R607
Q603
B C E
CN901-2
CN901-1
D612
C613
CN601B
2 4 6 8 10 12 14 16 18 20
1 3 5 7 9 11 13 15 17 19
J

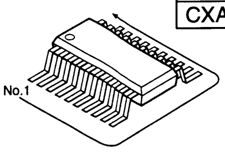
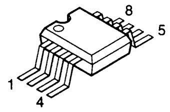
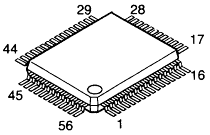
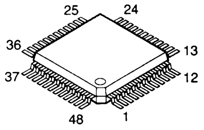
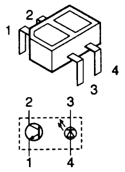
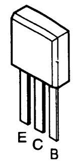
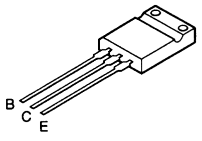
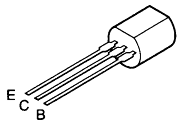
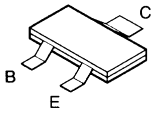
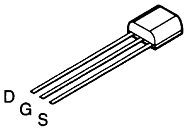
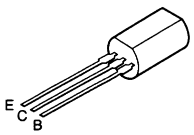
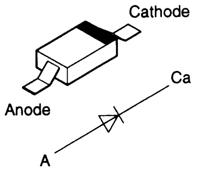
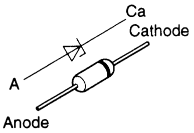
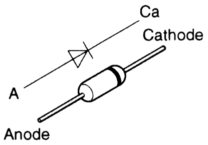
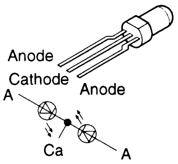
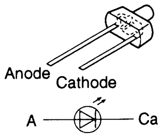
(REP2367B-P)

E OPERATION P.C.B.

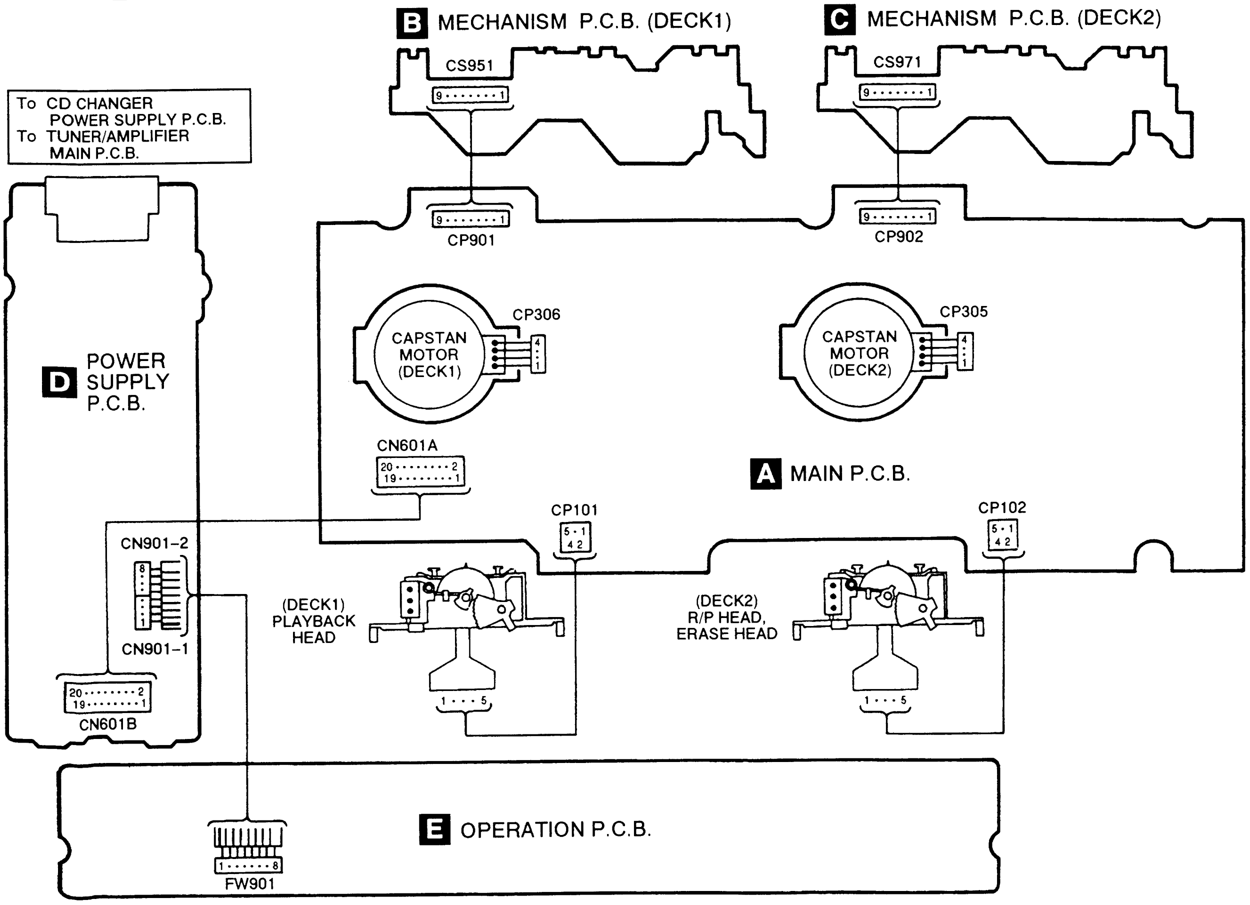

≜OPEN
(HIGH)
TAPE EDIT
(NOR)
●REC PAUSE
DOLBY NR
▶▶
▶
■
◀
◀◀
REV MODE
DECK 1/2
(DISPLAY)
COUNTER
(RESET)
≜OPEN
S901
S902
R901
D914
(DECK2)
R923
R902
S903
R903
R904
D901
(REC PAUSE)
R928
S904
R912
S905
D916
R905
R918
S906
R906
D917
(LIGHT)
S907
D907
R919
D918
R900
S900
R917
R907
R908
R914
R929
S909
D905
R922
D921
R915
R909
S910
D904
R910
D920
(LIGHT)
Q901
B C E
S911
R911
R916
D919
FW901
D906
Q902
B C E
S912
R930
S913
R926
C901
R931
R927
C903
R924
C902
S914
D911
(DECK1)
IC901
R925
S915
1695B

(REP2307B-S)

■ Type Illustration of IC's, Transistors and Diodes

MC14066BFEL 14PIN BU2090F-E2 16PIN CXA1102M-T4 16PIN 		BA7755AF 	M37471M4679F  29 28 44 17 16 45 56 1	CXA1998AQT6  25 24 36 13 37 12 48 1	0N2180RLC 
2SD1450RSTA DTA113ZSATP 	2SD2137PQTA 	2SD592ASTA 2SB621ARSTA 	2SB1218ARTX 2SD1819ARTX 2SD2436STXRA DTA143EUT106 DTC114EUT106 DTC143EUT106 DTC144EUT106 		2SJ164QTA 2SJ164RTA 
2SC3940AQSTA 	MA110TX  Cathode Ca Anode A	MTZJ5R1BTA MTZJ5R6BTA MTZJ9R1BTA  Ca Cathode A Anode	MA165TA MA723TA  Ca Cathode A Anode	SPR505MDTT  Anode Cathode Anode A Ca A	LNJ201LPQJA LNH801TPS0A1  Anode Cathode A Ca

■ Wiring Connection Diagram

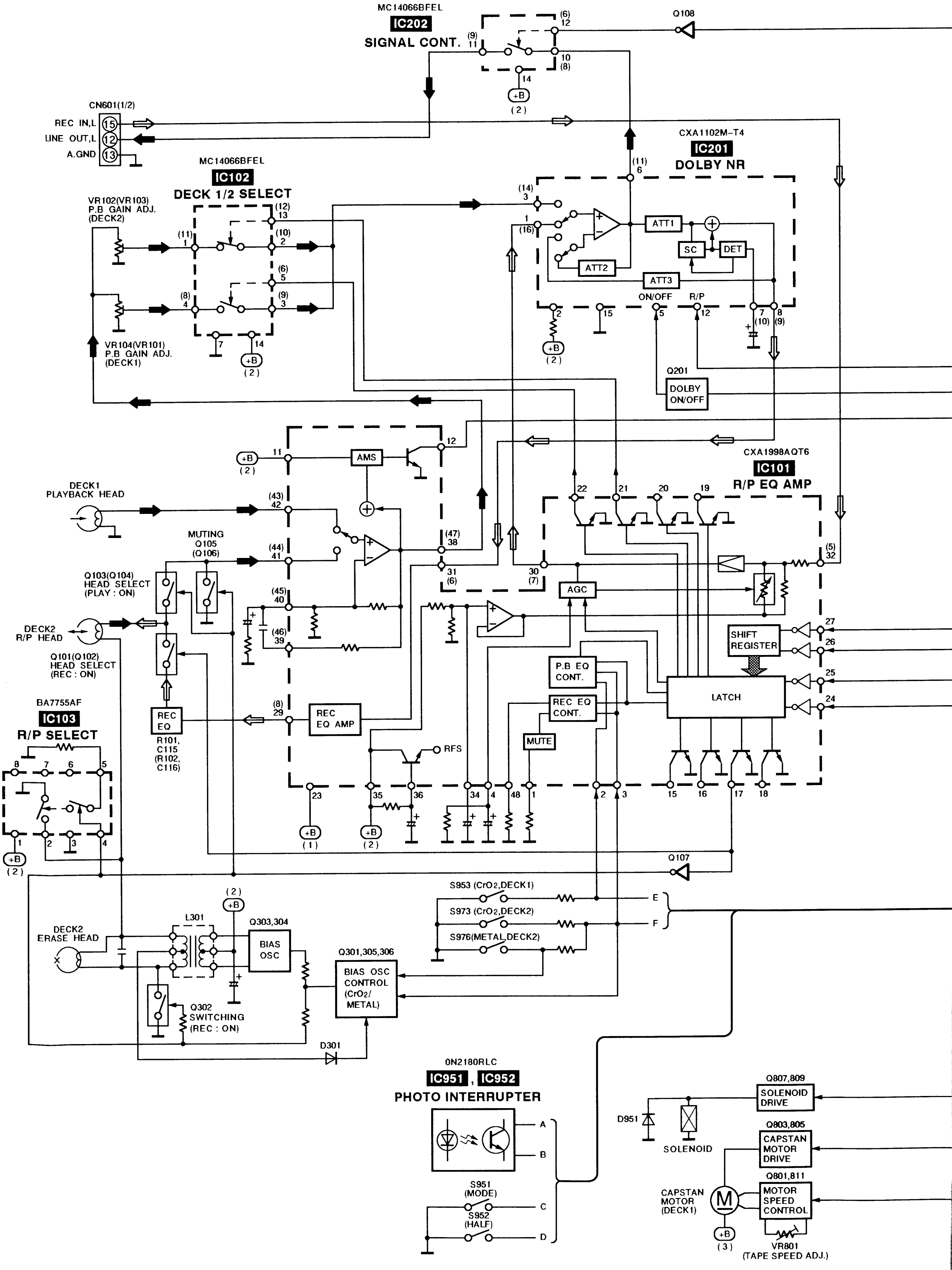

B MECHANISM P.C.B. (DECK1)
C MECHANISM P.C.B. (DECK2)
CS951
9 • • • • • • • 1
CS971
9 • • • • • • • 1
To CD CHANGER POWER SUPPLY P.C.B.
To TUNER/AMPLIFIER MAIN P.C.B.
CP901
CP902
CAPSTAN MOTOR (DECK1)
CP306
CAPSTAN MOTOR (DECK2)
CP305
D POWER SUPPLY P.C.B.
CN601A
20 • • • • • • • • 2
19 • • • • • • • • 1
A MAIN P.C.B.
CP101
CP102
5 • 1
4 2
CN901-2
CN901-1
(DECK1) PLAYBACK HEAD
(DECK2) R/P HEAD, ERASE HEAD
1 • • • 5
CN601B
E OPERATION P.C.B.
1 • • • • • • 8
FW901

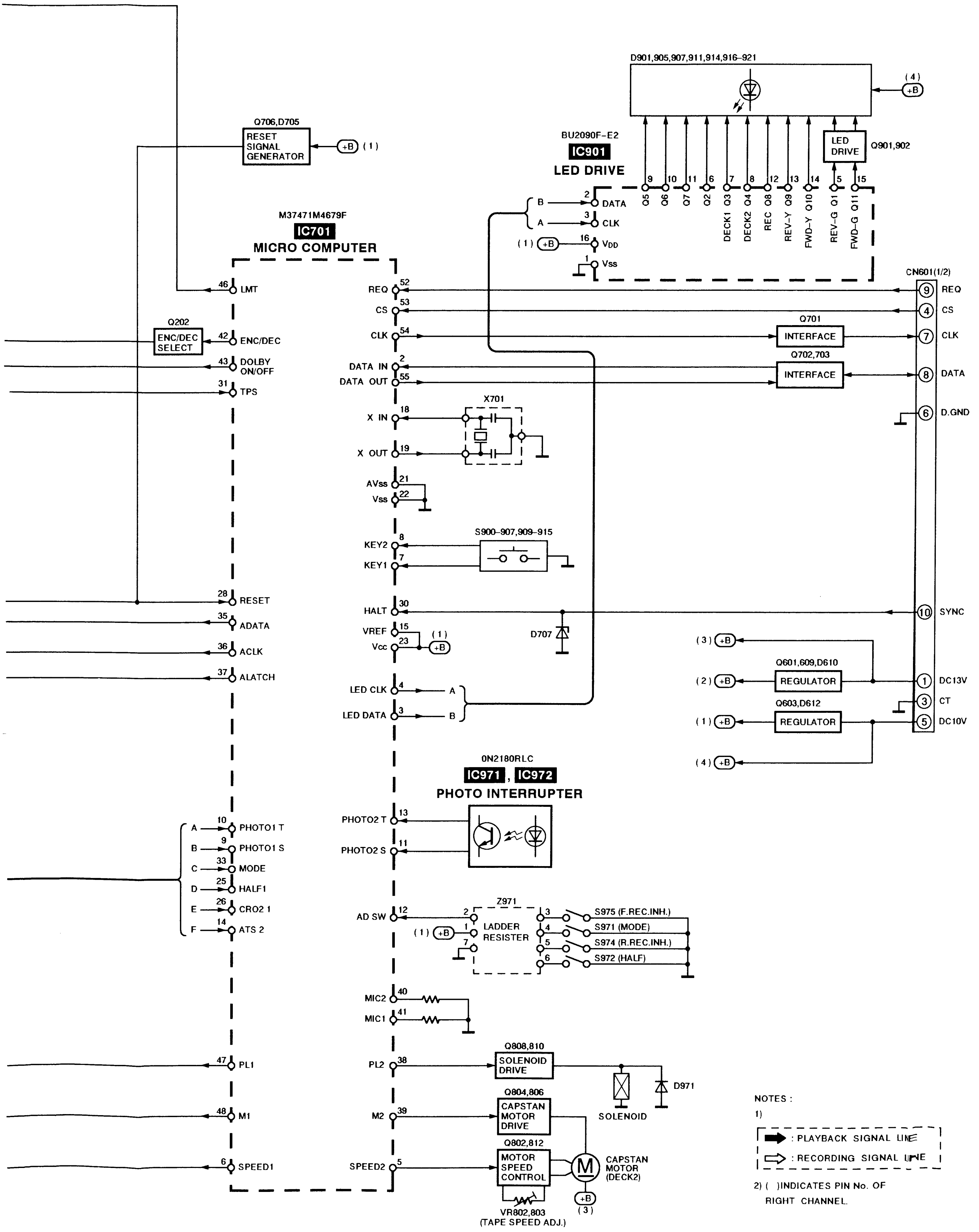
■ Terminal Function of IC's

• IC701 (M37471M4679F)

Pin No.	Terminal Name	I/O	Function
1	NC	—	Not used
2	DATA IN	I	Serial data input
3	LED DATA	O	Serial data signal output for LED drive IC
4	LED CLK	O	Serial clock signal output for LED drive IC
5	SPEED2	O	DECK 2 motor speed control signal output
6	SPEED1	O	DECK 1 motor speed control signal output
7, 8	KEY1, 2	I	Operation switch signal input
9	PHOTO1S	I	DECK 1 supply side reel pulse input
10	PHOTO1T	I	DECK 1 take-up side reel pulse input
11	PHOTO2S	I	DECK 2 supply side reel pulse input
12	AD SW	I	DECK 2 mechanism switch signal input (Half, Mode, F. REC INH., R. REC INH.)
13	PHOTO2T	I	DECK 2 take-up side reel pulse input
14	ATS2	I	DECK 2 mechanism switch signal input (NORMAL/CrO2/METAL)
15	VREF	—	Reference voltage input terminal for A/D converter (+5 V)
16, 17	NC	—	Not used
18	XIN	I	Clock signal input (8 MHz)
19	XOUT	O	Clock signal output (8 MHz)
20	NC	—	Not used
21	AVSS	—	Connect to GND
22	VSS	—	GND terminal
23	VCC	—	Power supply (+5 V)
24	NC	—	Not used
25	HALF1	I	DECK 1 mechanism switch signal input (Half)
26	CRO21	I	DECK 1 mechanism switch signal input (NORMAL/CrO2)
27	NC	—	Not used
28	RESET	I	Reset signal input
29	NC	I	Not used
30	HALT	I	AC power source detect signal input
31	TPS	I	TPS signal input
32	TEST	I	Test mode select signal input
33	MODE	I	DECK 1 mechanism switch signal input (Mode)
34	—	—	Not used
35	ADATA	O	Serial data signal output for IC101
36	ACLK	O	Serial clock signal output for IC101
37	ALATCH	O	Serial latch signal output for IC101
38	PL2	O	DECK 2 solenoid drive signal output
39	M2	O	DECK 2 motor drive signal output
40, 41	MIC2, 1	O	Not used
42	ENC/DEC	O	DOLBY NR record/play mode select signal output
43	DOLBY ON/OFF	O	DOLBY NR ON/OFF control signal output
44, 45	NC	—	Not used
46	LMT	O	Muting control signal output
47	PL1	O	DECK 1 solenoid drive signal output
48	M1	O	DECK 1 motor drive signal output
49	—	—	Not used
50	NC	—	Not used
51	VSS	—	GND terminal
52	REQ	I	Serial communication request signal input
53	CS	I	Serial communication complete signal input
54	CLK	O	Serial communication clock signal output
55	DATA OUT	O	Serial communication data signal output
56	NC	—	Not used

■ Block Diagram


MC14066BFEL
IC202
SIGNAL CONT.
Q108
CN601(1/2)
REC IN,L
LINE OUT,L
A.GND
15
12
13
CXA1102M-T4
IC201
DOLBY NR
MC14066BFEL
IC102
DECK 1/2 SELECT
VR102(VR103)
P.B GAIN ADJ.
(DECK2)
VR104(VR101)
P.B GAIN ADJ.
(DECK1)
ATT1
ATT2
ATT3
SC
DET
ON/OFF
R/P
Q201
DOLBY
ON/OFF
+B
(2)
(1)
(3)
AMS
CXA1998AQT6
IC101
R/P EQ AMP
DECK1
PLAYBACK HEAD
MUTING
Q105
(Q106)
Q103(Q104)
HEAD SELECT
(PLAY : ON)
DECK2
R/P HEAD
Q101(Q102)
HEAD SELECT
(REC : ON)
AGC
SHIFT
REGISTER
P.B EQ
CONT.
REC EQ
CONT.
LATCH
MUTE
BA7755AF
IC103
R/P SELECT
REC
EQ
R101,
C115
(R102,
C116)
REC
EQ AMP
RFS
Q107
S953 (CrO2,DECK1)
S973 (CrO2,DECK2)
S976(METAL,DECK2)
E
F
DECK2
ERASE HEAD
L301
Q303,304
BIAS
OSC
Q301,305,306
BIAS OSC
CONTROL
(CrO2/
METAL)
Q302
SWITCHING
(REC : ON)
D301
0N2180RLC
IC951, IC952
PHOTO INTERRUPTER
A
B
S951
(MODE)
S952
(HALF)
C
D
Q807,809
SOLENOID
DRIVE
D951
SOLENOID
Q803,805
CAPSTAN
MOTOR
DRIVE
Q801,811
MOTOR
SPEED
CONTROL
CAPSTAN
MOTOR
(DECK1)
M
VR801
(TAPE SPEED ADJ.)


D901,905,907,911,914,916–921
(4) +B
BU2090F-E2
IC901
LED DRIVE
LED DRIVE
Q901,902
B DATA 2
A CLK 3
(1) +B VDD 16
Vss 1
9 10 11 6 7 8 12 13 14 5 15
Q5 Q6 Q7 Q2 Q3 Q4 Q8 Q9 Q10 Q1 Q11
DECK1 DECK2 REC REV-Y FWD-Y REV-G FWD-G
Q706,D705
RESET SIGNAL GENERATOR
+B (1)
M37471M4679F
IC701
MICRO COMPUTER
46 LMT
Q202
ENC/DEC SELECT
42 ENC/DEC
43 DOLBY ON/OFF
31 TPS
28 RESET
35 ADATA
36 ACLK
37 ALATCH
A 10 PHOTO1 T
B 9 PHOTO1 S
C 33 MODE
D 25 HALF1
E 26 CRO2 1
F 14 ATS 2
47 PL1
48 M1
6 SPEED1
REQ 52
CS 53
CLK 54
DATA IN 2
DATA OUT 55
X IN 18
X OUT 19
X701
AVss 21
Vss 22
KEY2 8
KEY1 7
S900–907,909–915
HALT 30
VREF 15
Vcc 23
(1) +B
D707
LED CLK 4 A
LED DATA 3 B
Q701
INTERFACE
Q702,703
INTERFACE
CN601(1/2)
9 REQ
4 CS
7 CLK
8 DATA
6 D.GND
10 SYNC
(3) +B
Q601,609,D610
(2) +B REGULATOR
1 DC13V
3 CT
Q603,D612
(1) +B REGULATOR
5 DC10V
(4) +B
0N2180RLC
IC971 , IC972
PHOTO INTERRUPTER
PHOTO2 T 13
PHOTO2 S 11
Z971
AD SW 12
(1) +B
LADDER RESISTER
2 1 7 3 4 5 6
S975 (F.REC.INH.)
S971 (MODE)
S974 (R.REC.INH.)
S972 (HALF)
MIC2 40
MIC1 41
Q808,810
PL2 38
SOLENOID DRIVE
D971
SOLENOID
Q804,806
M2 39
CAPSTAN MOTOR DRIVE
Q802,812
SPEED2 5
MOTOR SPEED CONTROL
M
CAPSTAN MOTOR (DECK2)
+B (3)
VR802,803 (TAPE SPEED ADJ.)

NOTES :

1)

➡ : PLAYBACK SIGNAL LINE

⇨ : RECORDING SIGNAL LINE

2) ( )INDICATES PIN No. OF RIGHT CHANNEL.

■ Measurements and Adjustments

Measurement Condition

- Dolby NR switch: OFF
- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: 20 ± 5°C (68 ± 9°F)

Measuring instrument

- DC Power Supply
- AF Ocsillator

Measurement Condition

- Head azimuth adjustment (8 kHz, -20 dB): QZZCFM
- Tape speed adjustment (3 kHz, -10 dB): QZZCWAT
- Playback gain adjustment (315 Hz, 0 dB): QZZCFM
- Recording/playback frequency response adjustment:
  QZZCFM (315 Hz/0 dB, 315Hz/-20dB, 12.5 kHz~63 Hz/-20 dB)
  QZZCRA (Normal blank tape)
  QZZCRX (CrO2 blank tape)
  QZZCRZ (Metal blank tape)

Adjustment Points and Test Points

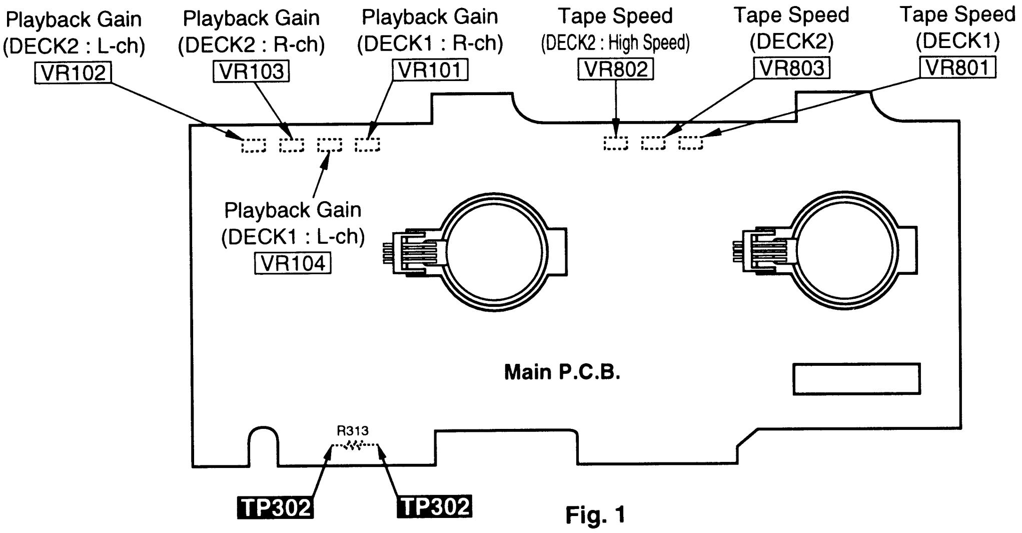

Playback Gain (DECK2 : L-ch) VR102
Playback Gain (DECK2 : R-ch) VR103
Playback Gain (DECK1 : R-ch) VR101
Tape Speed (DECK2 : High Speed) VR802
Tape Speed (DECK2) VR803
Tape Speed (DECK1) VR801
Playback Gain (DECK1 : L-ch) VR104
Main P.C.B.
R313
TP302
TP302

Fig. 1

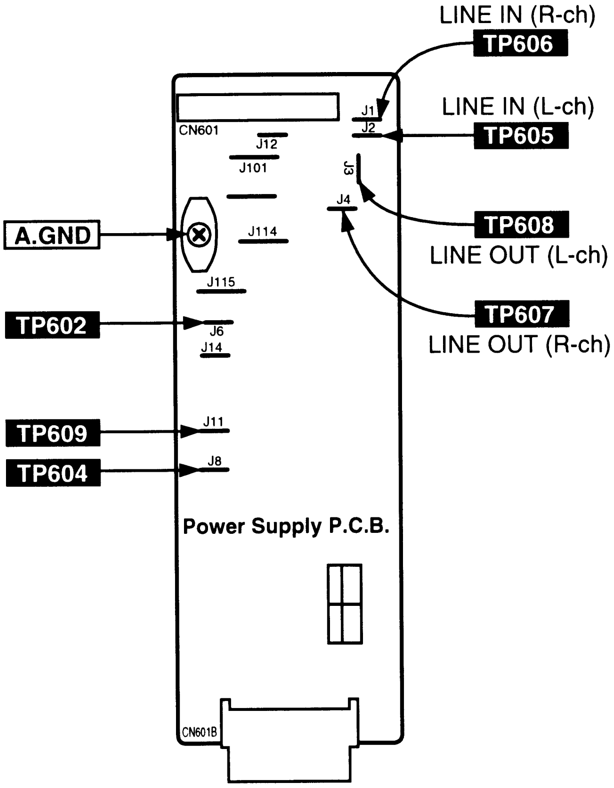

LINE IN (R-ch)
TP606
LINE IN (L-ch)
TP605
TP608
LINE OUT (L-ch)
TP607
LINE OUT (R-ch)
A.GND
TP602
TP609
TP604
CN601
J1
J2
J3
J4
J12
J101
J114
J115
J6
J14
J11
J8
Power Supply P.C.B.
CN601B

Fig. 2

HEAD AZIMUTH ADJUSTMENT (DECK 1/2)

1. Connect the measuring instrument as shown in Fig. 3.
2. Replace azimuth screws for both forward and reverse direction after removing the screw-locking bond left on the head base.
   Fine adjustment of azimuth can not be performed with remaining the bond on the head base.
   (Supply part No. of azimuth adjusting screw: **RHD17015**)
3. Playback the azimuth adjustment portion (8 kHz, -20 dB) of test tape (QZZCFM). Adjust the azimuth adjusting screw until the outputs of the L/R-ch are maximized. (Refer to Fig. 4.)
   Make sure that the difference in the peak level between the left and right channels does not exceed 0.5 dB.
4. Perform the same adjustment in reverse playback mode.

Check of the level difference forward and reverse directions

5. Playback the playback gain adjustment portion (315 Hz, 0 dB) of test tape (QZZCFM). Check if level difference between forward and reverse direction is within 1.5 dB.
6. After the adjustment, apply screwlock to the azimuth adjusting screw.

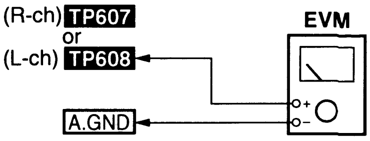


Fig. 3

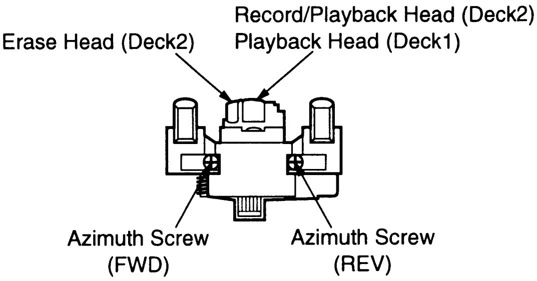


Fig. 4

TAPE SPEED ADJUSTMENT (DECK 1/2)

Note: When connecting the unit to other system components for testing, short the section between the test points TP609 and TP604 and turn on the entire system. (The unit is set to the TEST mode, and either the DECK1 or DECK2 indicators will blink.)

Normal speed (Standard value: 3000 ± 45 Hz)

1. Playback the middle portion of the test tape (QZZCWAT).
2. Adjust Deck 1 = **VR801** and Deck 2 = **VR803** for the output value shown below. (Refer to Fig. 1)

Adjustment target: 3000 ± 15 Hz (NORMAL speed)
Standard value: 3000 ± 45 Hz (NORMAL speed)

High speed [Set the unit to forward (FWD) mode.]

3. Playback the middle portion on the test tape (QZZCWAT).
4. Press the one touch tape edit (High) button.
   This will set the high speed mode.
5. At that time, check if the output from DECK 1 is within the standard value.

Standard value: 5000 ± 600 Hz (HIGH speed)

6. Adjust **VR802** so that the output frequency of DECK 2 is within ± **30 Hz** for the value of the output frequency of DECK 1. (Refer to Fig. 1)

Note: When connecting the unit to other system components, disconnect the short between the test points TP609 and TP604.

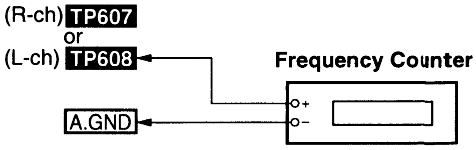


Fig. 5

PLAYBACK GAIN ADJUSTMENT (DECK1/2)

1. Find the start of the 315 Hz/0 dB section of the test tape (QZZCFM), insert the tape into Deck1 and 2, and play it back (FWD)
3. Adjust Deck 2 : **VR102** (L-ch) [**VR103** (R-ch)] and Deck 1 : **VR104** (L-ch) [**VR101** (R-ch)] so that the output is within the standard value. (Refer to Fig. 1)

Standard value : 280 mV ± 15 mV

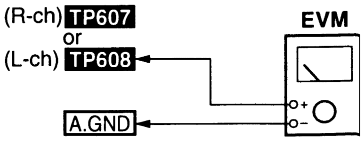


Fig. 6

ERASE CURRENT CONFIRMATION (DECK2)

1. Insert the blank tape into Deck2, and press the REC PAUSE button.
3. Check if the output at this time between the erase current confirmation point TP301 and TP302 (the output on both edged of R313) is within the standard value. (Refer to Fig. 7.)

Standard value		**EVM reading**
Normal tape	**: 85 ± 25 mA**	**(85 ± 25 mV)**
CrO2 tape	**: 150 ± 25 mA**	**(150 ± 25 mV)**
Metal tape	**: 185 ± 25 mA**	**(185 ± 25 mV)**

Note: The test tape is not required when confirming the erase current.

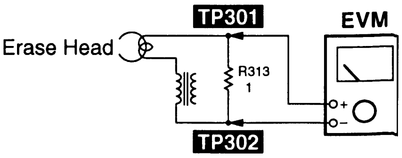


Fig. 7

Playback frequency response check (DECK 1/2)

Playback the 315 Hz/-20 dB and 12.5 kHz to 63 Hz/-20 dB sections of the test tape (QZZCFM) and then, using the 315 Hz/-20 dB playback output as a reference (0 dB), confirm that the playback frequency response is within the range shown in Fig. 9.

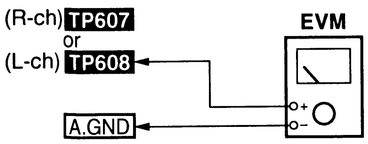


Fig. 8

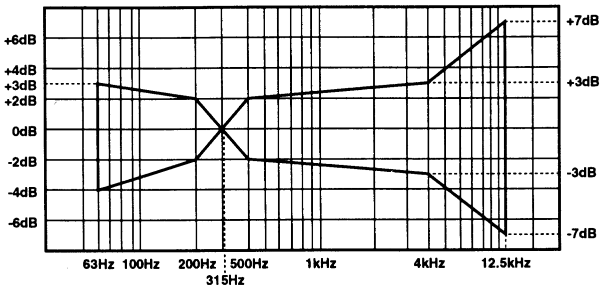


Fig. 9

Recording/playback frequency response and gain check (DECK 2)

Normal tape check

1. Insert a Normal-type blank tape (QZZCRA) into Deck 2.
2. Record signals at 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 2 kHz, 10 kHz and 12.5 kHz (28 mV).
3. Set the playback frequency of the recorded signals at 1 kHz as the reference response (0 dB).
4. Playback the recorded signals to confirm that the output is within the range of the overall frequency response shown in Fig. 11.

CrO2/Metal tape check

5. Repeat steps 2 to 4 for each tape and confirm that the output for each is within the range of the overall frequency response shown in Fig. 12.

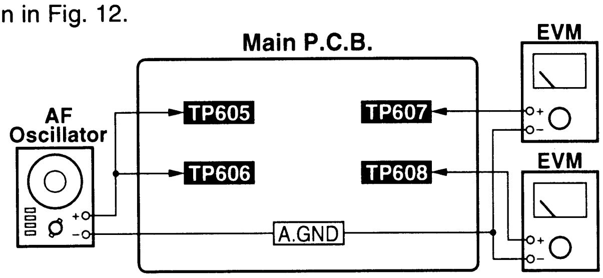


Fig. 10

Normal Tape Overall frequency response chart

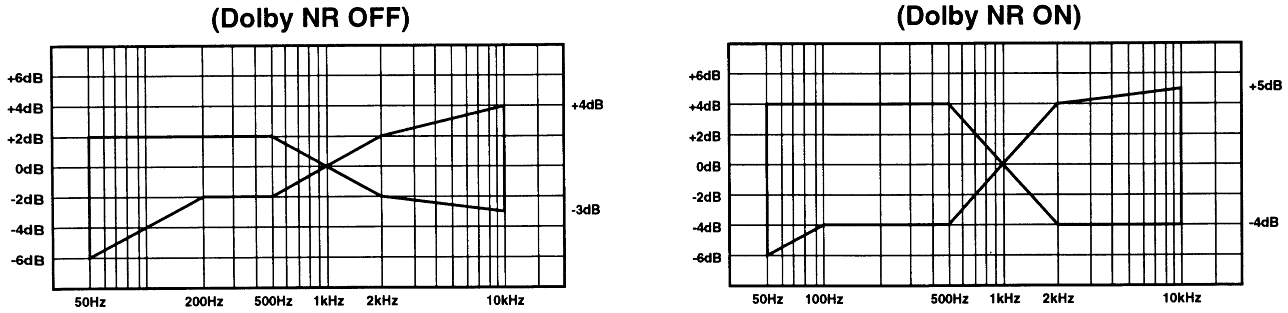


Fig. 11

CrO2 and Metal Tape Overall frequency response chart

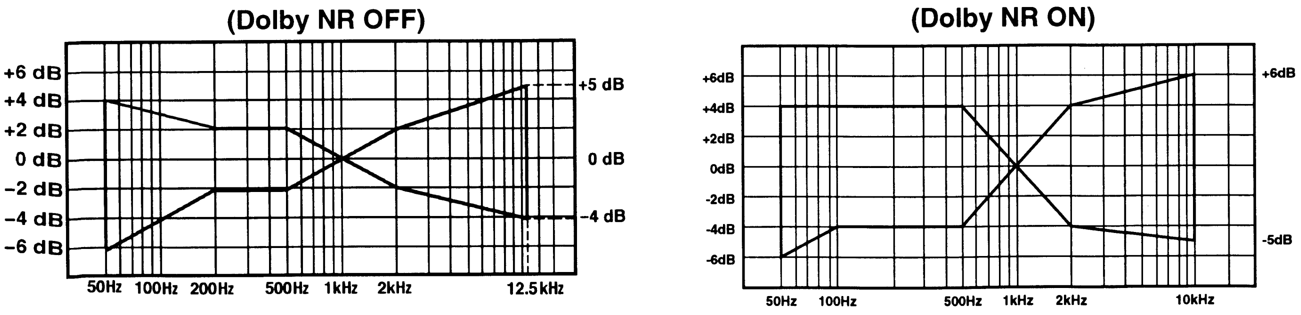


Fig. 12

■ Replacement Parts List

Notes: * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
* All parts are supplied by MESA.

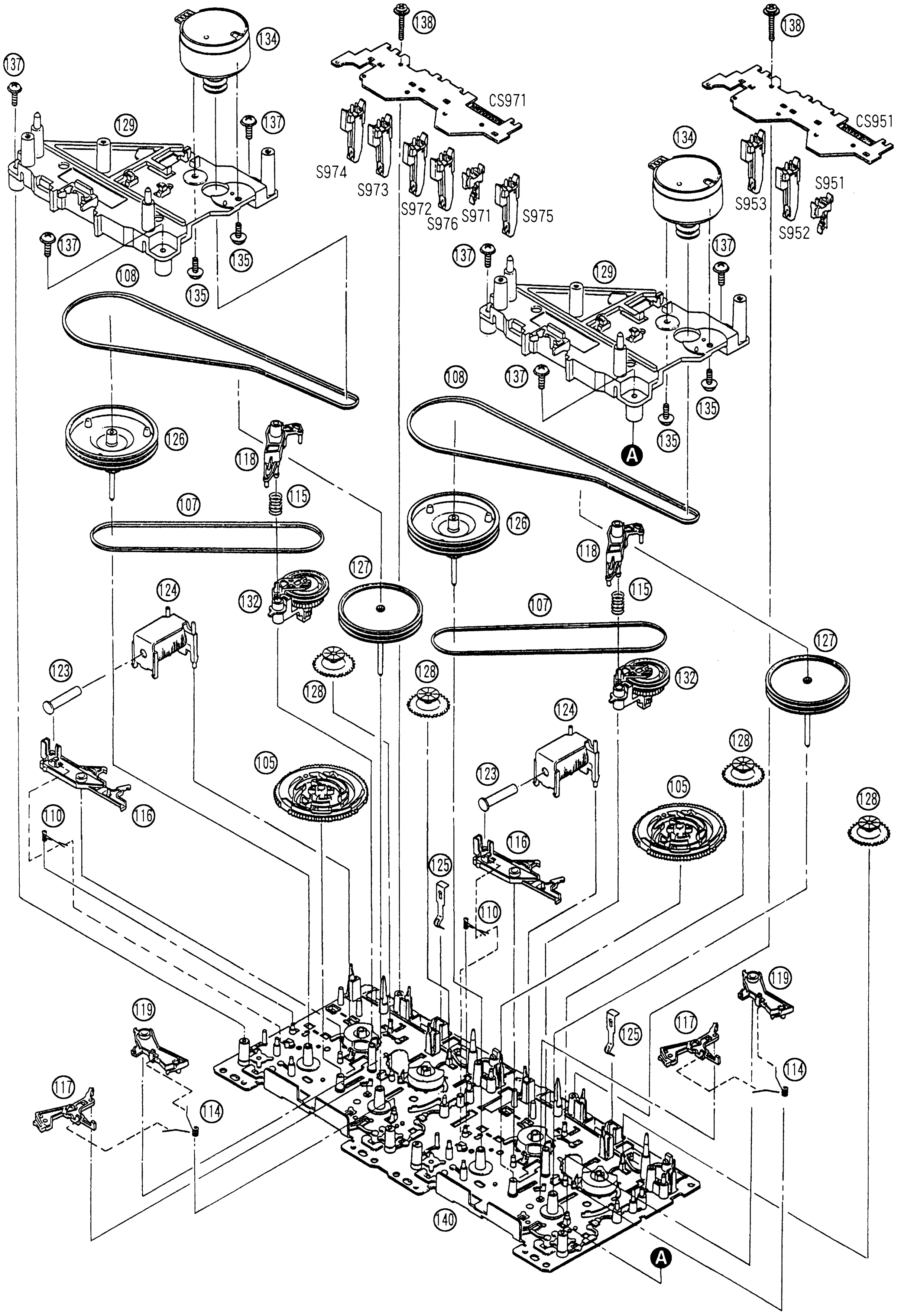
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0290-1K	CABINET	1	(K)
1	RKM0290-H	CABINET	1	(H)
2	RHD30007-K1	SCREW	4	
3	XTBS3+10JFZ1	SCREW	1	
4	REX0851	WIRE ASS'Y	1	
5	XTBS3+8JFZ1	SCREW	1	
6	RMN0432	HOLDER	1	
7	REZ0886	WIRE ASS'Y(8P)	1	
8	RMR1008-Q	LED HOLDER	2	
9	RFKGSEH600GH	FRONT PANEL ASS'Y	1	(H)
9	RFKGSEH600GK	FRONT PANEL ASS'Y	1	(K)
10	RFKLSEH600GB	CASSETTE HOLDER(DECK1)	1	
10-1	RUS757ZA	SPRING	2	
10-2	RDG0129-1	GEAR	2	
11	RFKLACH430GB	CASSETTE HOLDER(DECK2)	1	
11-1	RUS757ZA	SPRING	2	
11-2	RDG0129-1	GEAR	2	
12	SHG1654	RUBBER	3	
13	RGB0022-A	PANASONIC BADGE	1	
14	XTB3+10JFZ	SCREW	5	
15	RGL0349-Q	LENS1	1	
16	RGL0350-Q	LENS2	1	
17	RJR0113	CONNECTOR(CP305/306)	2	
18	RKF0507-1K	CASSETTE PANEL(DECK2)	1	(K)
18	RKF0507-H	CASSETTE PANEL(DECK2)	1	(H)
19	RKW0489A-Q	WINDOW 1	1	
20	RKW0490A-Q	WINDOW 2	1	
21	RMB0474	SPRING	2	
22	RMQ0577A-2	FRAME	1	
23	RMR0909-X	P. C. B. SUPPORT	1	
24	RSC0453	SHIELD PLATE 1	1	
25	RSC0454	SHIELD PLATE 2	1	
26	XTBS26+8J	SCREW	7	
27	RKF0506A-H	CASSETTE PANEL(DECK1)	1	(H)
27	RKF0506A-1K	CASSETTE PANEL(DECK1)	1	(K)
101	RED0037	HEAD BLOCK(R/P)	1	
101-1	RHD17015	SCREW	1	
102	RED0038	HEAD BLOCK(P. B)	1	
102-1	RHD17015	SCREW	1	
103	RDG0300	REEL TABLE ASS'Y	4	
104	RDG0301	GEAR	2	
105	RDK0026	GEAR	2	
107	RDV0033-1	BELT 1	2	
108	RDV0034	BELT 2	2	
110	RUW147ZA	SPRING	2	
111	RMB0400	SPRING	4	
112	RMB0403	SPRING	2	
113	RMB0404	SPRING	2	
114	RMB0406	SPRING	2	
115	RMB0408	SPRING	2	
116	RML0370	LEVER	2	
117	RML0371	LEVER	2	
118	RML0372	LEVER	2	
119	RML0374	LEVER	2	
120	RMM0131	ROD	2	
121	RMM0133	ROD	2	
122	RMQ0519	REEL CAP	4	
123	RMS0398-1	SHAFT	2	
124	RSJ0003	PLUNGER ASS'Y	2	
125	RUS609ZC	SPRING	2	
126	RXF0049	FLYWHEEL ASS'Y	2	
127	RXF0050	FLYWHEEL ASS'Y	2	
128	RXG0040	GEAR	4	
129	RMK0283	SUB CHASSIS	1	
130	RXL0124	PINCH ROLLER ASS'Y	2	
130-1	RMB0401	SPRING	1	
131	RXL0125	PINCH ROLLER ASS'Y	2	
131-1	RMB0402	SPRING	1	
132	RXL0126	ARM GEAR	2	
133	RXQ0412	CHASSIS ASS'Y	2	
133-1	RMB0405	SPRING	1	
133-2	RMM0132	ROD	1	
134	REM0055-1	MOTOR ASS'Y	1	
135	RHD26022	SCREW	2	
136	XTW2+5L	SCREW	4	
137	XTW26+10S	SCREW	6	
138	XYC2+JF17	SCREW	2	
140	RFKJSCH770EK	MAIN CHASSIS ASS'Y	1	
C101, 02	ECUV1H681KBN	50V 680P	2	
C103, 04	ECUV1H821KBN	50V 820P	2	
C109, 10	ECQB1H183JF3	50V 0. 018U	2	
C111, 12	ECEA0JKA470B	6. 3V 47U	2	
C113, 14	ECEA1EKA4R7B	25V 4. 7U	2	
C115, 16	ECUV1H471KBN	50V 470P	2	
C117, 18	ECUV1H331KBN	50V 330P	2	
C119, 20	ECEA1HKA010B	50V 1U	2	
C123, 24	ECEA1EKA4R7B	25V 4. 7U	2	
C125, 26	ECUV1H332KBN	50V 3300P	2	
C129	ECEA1AKA220B	10V 22U	1	
C130	RCE1AKA101BG	10V 100U	1	
C131-34	ECUV1H471KBN	50V 470P	4	
C135, 36	ECEA1HKA010B	50V 1U	2	
C137	ECEA1HKA0R1B	50V 0. 1U	1	
C138	ECUV1E473KBN	25V 0. 047U	1	
C139	ECEA0JKA470B	6. 3V 47U	1	
C140	RCE1CKA100BG	16V 10U	1	
C141	ECEA1HKA010B	50V 1U	1	
C142	ECUV1E104ZFN	25V 0. 1U	1	
C143, 44	ECUV1H471KBN	50V 470P	2	
C150	RCE1AKA101BG	10V 100U	1	
C203, 04	ECEA1EKA4R7B	25V 4. 7U	2	
C205, 06	ECEA1HKA010B	50V 1U	2	
C207, 08	ECUV1H182KBN	50V 1800P	2	
C211, 12	ECUV1H152KBN	50V 1500P	2	
C213, 14	ECEA1EKA4R7B	25V 4. 7U	2	
C215, 16	RCE1CKA100BG	16V 10U	2	
C217, 18	ECEA1HKAR68B	50V 0. 68U	2	
C219	ECEA1CKA101B	16V 100U	1	
C220	RCE1ARC471BG	10V 470U	1	
C221, 22	ECEA1HKAR68B	50V 0. 68U	2	
C223	ECEA1EKA4R7B	25V 4. 7U	1	
C225, 26	ECEA1EKA4R7B	25V 4. 7U	2	
C239, 40	ECUV1H681KBN	50V 680P	2	
C241	ECUV1H103KBN	50V 0. 01U	1	
C243, 44	ECUV1H682KBN	50V 6800P	2	
C302	ECEA2AN2R2SB	100V 2. 2U	1	
C303	ECQP2E682JZT	250V 6800P	1	
C304	RCE1AKA101BG	10V 100U	1	
C305	ECEA1HKA0R1B	50V 0. 1U	1	
C306	ECQB1H393JF3	50V 0. 039U	1	
C307	ECUV1H102KBN	50V 1000P	1	
C308	ECUV1H332KBN	50V 3300P	1	
C309	ECEA0JKA470B	6. 3V 47U	1	
C310, 11	ECUV1H103KBN	50V 0. 01U	2	
C323	ECUV1H102KBN	50V 1000P	1	
C606	ECA1EM101B	25V 100U	1	
C607	ECA1AM471B	16V 470U	1	
C609	ECBT1E103ZF5	25V 0. 01U	1	
C611	ECEA1HKA010B	50V 1U	1	
C613	RCE1AKA470BG	10V 47U	1	
C614	ECBT1E103ZF5	25V 0. 01U	1	
C701	ECUV1H103KBN	50V 0. 01U	1	
C702	ECEA0JKA101B	6. 3V 100U	1	
C705	ECUV1E103ZFN	25V 0. 01U	1	
C706	RCE1HKA3R3BG	50V 3. 3U	1	
C707	ECUV1E103ZFN	25V 0. 01U	1	
C901	ECBT1H471KB5	50V 470P	1	
C902	ECBT1H104ZF5	50V 0. 1U	1	
C903	ECBT1H471KB5	50V 470P	1	
CN601	RJS2A5519-1	CONNECTOR(19P)	1	
CN601A	RJT077K20	CONNECTOR(20P)	1	
CN601B	RJU077K20	CONNECTOR(20P)	1	
CN901-1	RJS1A6604T1	CONNECTOR(4P)	1	
CN901-2	RJS1A6604T1	CONNECTOR(4P)	1	
CP101, 02	RJS1A6805	CONNECTOR(5P)	2	

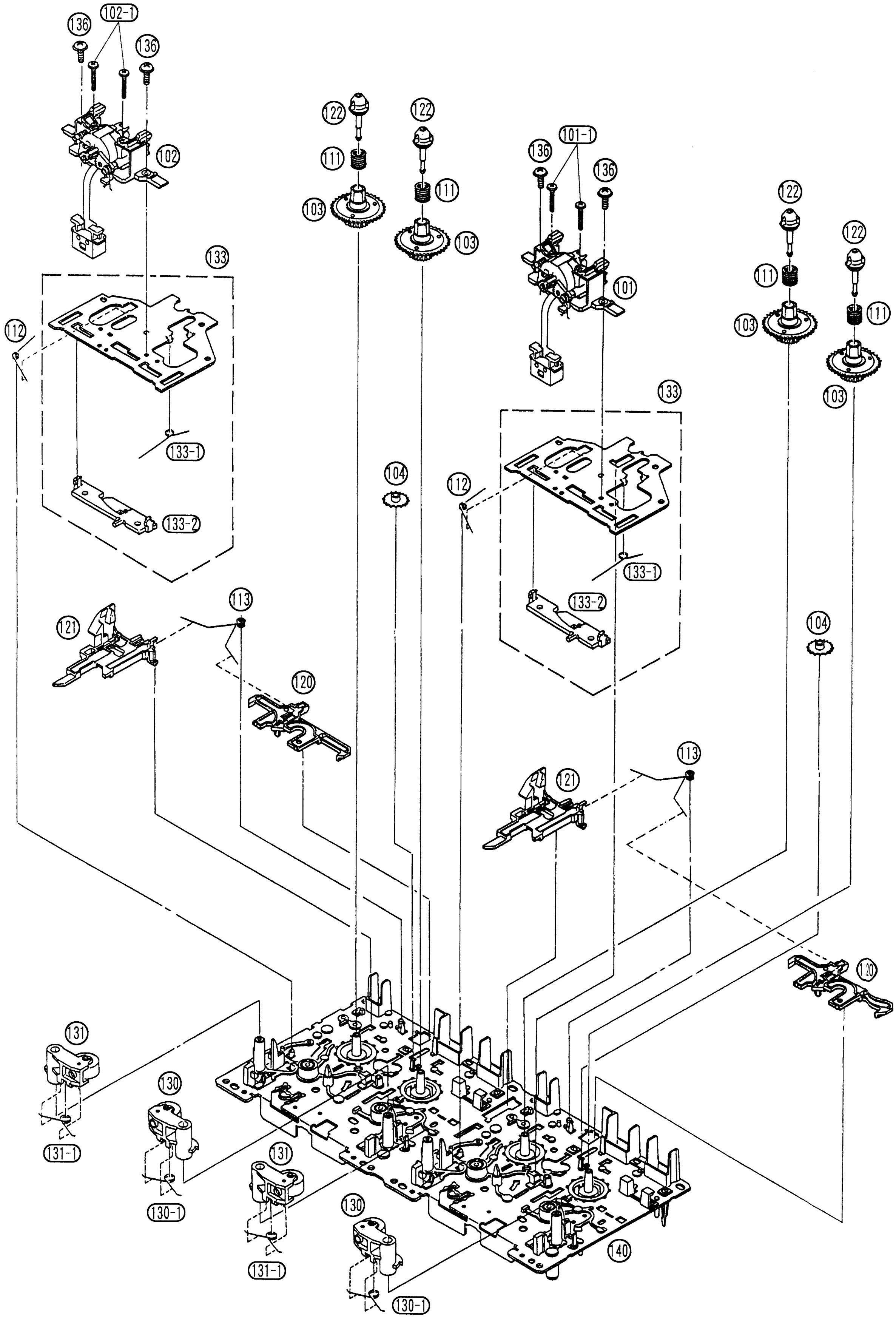
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
CP901, 02	RJT071H09A	CONNECTOR(9P)	2	
CS951	RJU071H09M	CONNECTOR(9P)	1	
CS971	RJU071H09M	CONNECTOR(9P)	1	
D301	MA110TX	DIODE	1	
D609	MA723TA	DIODE	1	
⚠ D610	MTZJ9R1BTA	DIODE	1	
⚠ D612	MTZJ5R6BTA	DIODE	1	
D613	MA723TA	DIODE	1	
D616	MA165TA	DIODE	1	
D705, 06	MA110TX	DIODE	2	
⚠ D707	MTZJ5R1BTA	DIODE	1	
D708-10	MA110TX	DIODE	3	
D901	LNJ201LPQJA	LED	1	
D904	MA165TA	DIODE	1	
D905	SPR505MDTT	LED	1	
D906	MA165TA	DIODE	1	
D907	SPR505MDTT	LED	1	
D911	LNJ201LPQJA	LED	1	
D914	LNJ201LPQJA	LED	1	
D916-21	LNH801TPS0A1	LED	6	
D951	MA165	DIODE	1	
D971	MA165	DIODE	1	
E1	SNE1004-2	EARTH TERMINAL	1	
IC101	CXA1998AQT6	IC	1	
IC102	MC14066BFEL	IC	1	
IC103	BA7755AF	IC	1	
IC201	CXA1102M-T4	IC	1	
IC202	MC14066BFEL	IC	1	
IC701	M37471M4679F	IC	1	
IC901	BU2090F-E2	IC	1	
IC951, 52	0N2180RLC	IC	2	
IC971, 72	0N2180RLC	IC	2	
L201, 02	ELELN103KA	COIL	2	
L301	RL08B006-K	COIL	1	
L302	RLQZB101KT-D	COIL	1	
L701	RLQA100JT-Y	COIL	1	
L702	RLBN102V-Y	COIL	1	
Q101, 02	2SJ164RTA	TRANSISTOR	2	
Q103, 04	2SJ164QTA	TRANSISTOR	2	
Q105, 06	2SD1819ARTX	TRANSISTOR	2	
Q107	DTA143EUT106	TRANSISTOR	1	
Q108	DTC143EUT106	TRANSISTOR	1	
Q201, 02	DTA143EUT106	TRANSISTOR	2	
Q301	2SD1819ARTX	TRANSISTOR	1	
Q302	2SD2436STXRA	TRANSISTOR	1	
Q303, 04	2SD1450RSTA	TRANSISTOR	2	
Q305, 06	DTC144EUT106	TRANSISTOR	2	
⚠ Q601	2SD2137PQTA	TRANSISTOR	1	
⚠ Q603	2SC3940AQSTA	TRANSISTOR	1	
⚠ Q609	2SD2137PQTA	TRANSISTOR	1	
Q701-03	2SD1819ARTX	TRANSISTOR	3	
Q706	DTC114EUT106	TRANSISTOR	1	
Q801, 02	2SB1218RTW	TRANSISTOR	2	
Q803, 04	2SD592ASTA	TRANSISTOR	2	
Q805, 06	DTA143EUT106	TRANSISTOR	2	
Q807, 08	2SB621ARSTA	TRANSISTOR	2	
Q809-12	DTC143EUT106	TRANSISTOR	4	
Q901, 02	DTA113ZSATP	TRANSISTOR	2	
R101, 02	ERJ6GEYJ562V	1/10W 5. 6K	2	
R103, 04	ERJ6GEYJ104V	1/10W 100K	2	
R105, 06	ERJ6GEYJ334V	1/10W 330K	2	
R107, 08	ERJ6GEYJ103V	1/10W 10K	2	
R109, 10	ERJ6GEYJ102Z	1/10W 1K	2	
R111	ERJ6GEYJ820V	1/10W 82	1	
R112	ERJ8GEYJ820V	1/8W 82	1	
R113	ERJ6GEYJ123V	1/10W 12K	1	
R114	ERJ6GEYJ273V	1/10W 27K	1	
R117	ERJ6GEYJ102Z	1/10W 1K	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R118, 19	ERDS2FJ220	1/4W 22	2	
R120	ERJ6GEYJ104V	1/10W 100K	1	
R121, 22	ERJ6GEYJ103V	1/10W 10K	2	
R125	ERJ6GEYJ104V	1/10W 100K	1	
R126	ERJ6GEYJ223V	1/10W 22K	1	
R127	ERJ6GEYJ472V	1/10W 4. 7K	1	
R130	ERJ6GEYJ475V	1/10W 4. 7M	1	
R131	ERJ6GEYJ334V	1/10W 330K	1	
R132	ERJ6GEYJ273V	1/10W 27K	1	
R133	ERJ6GEYJ333V	1/10W 33K	1	
R134	ERJ6GEYJ392V	1/10W 3. 9K	1	
R135	ERJ6GEYJ682V	1/10W 6. 8K	1	
R136, 37	ERJ6GEYJ222V	1/10W 2. 2K	2	
R138	ERJ6GEYJ472V	1/10W 4. 7K	1	
R139, 40	ERJ6GEYJ473V	1/10W 47K	2	
R141	ERJ8GEYJ101V	1/8W 100	1	
R142	ERJ6GEYJ101Z	1/10W 100	1	
R143	ERDS2FJ101	1/4W 100	1	
R144	ERJ6GEYJ101Z	1/10W 100	1	
R147-50	ERJ6GEYJ562V	1/10W 5. 6K	4	
R151, 52	ERJ6GEYJ104V	1/10W 100K	2	
R153, 54	ERJ6GEYJ681V	1/10W 680	2	
R157, 58	ERJ6GEYJ223V	1/10W 22K	2	
R207, 08	ERJ6GEYJ473V	1/10W 47K	2	
R209, 10	ERJ6GEYJ102Z	1/10W 1K	2	
R211, 12	ERJ6GEYJ103V	1/10W 10K	2	
R213, 14	ERJ6GEYJ332V	1/10W 3. 3K	2	
R215, 16	ERJ6GEYJ123V	1/10W 12K	2	
R217, 18	ERJ6GEYJ222V	1/10W 2. 2K	2	
R219	ERJ6GEYJ433V	1/10W 43K	1	
R220	ERDS2FJ220	1/4W 22	1	
R221, 22	ERJ6GEYJ101Z	1/10W 100	2	
R223, 24	ERJ6GEYJ103V	1/10W 10K	2	
R225, 26	ERJ6GEYJ473V	1/10W 47K	2	
R230, 31	ERJ6GEYJ102Z	1/10W 1K	2	
R232	ERJ6GEYJ103V	1/10W 10K	1	
R233, 34	ERJ6GEYJ101Z	1/10W 100	2	
R235, 36	ERJ6GEYJ103V	1/10W 10K	2	
R237	ERDS2FJ220	1/4W 22	1	
R301	ERJ6GEYJ103V	1/10W 10K	1	
R302	ERJ6GEYJ182V	1/10W 1. 8K	1	
R303	ERJ6GEYJ222V	1/10W 2. 2K	1	
R304	ERJ6GEYJ153V	1/10W 15K	1	
R305	ERJ6GEYJ183V	1/10W 18K	1	
R306	ERJ6GEYJ333V	1/10W 33K	1	
⚠ R307	ERDS1FJ2R2	1/2W 2. 2	1	
R308	ERJ6GEYJ102Z	1/10W 1K	1	
R309-11	ERJ6GEYJ472V	1/10W 4. 7K	3	
R313	ERDS2TJ1R0T	1/4W 1	1	
R603	ERDS2TJ221T	1/4W 220	1	
⚠ R605	ERD2FCJ4R7	1/4W 4. 7	1	
⚠ R607	ERD2FCG100	1/4W 10	1	
R608, 09	ERDS2FJ101	1/4W 100	2	
R610	ERDS2TJ152T	1/4W 1. 5K	1	
R628, 29	ERDS2TJ1R0T	1/4W 1	2	
R630	ERQ16NKWR33E	1/6W 0. 33	1	
R632	ERDS2TJ473T	1/4W 47K	1	
R701, 02	ERJ6GEYJ103V	1/10W 10K	2	
R703	ERJ6GEYJ562V	1/10W 5. 6K	1	
R704	ERJ6GEYJ472V	1/10W 4. 7K	1	
R705	ERJ6GEYJ473V	1/10W 47K	1	
R708	ERJ6GEYJ472V	1/10W 4. 7K	1	
R710	ERJ6GEYJ102Z	1/10W 1K	1	
R711	ERJ6GEYJ104V	1/10W 100K	1	
R712, 13	ERJ6GEYJ683V	1/10W 68K	2	
R714, 15	ERJ6GEYJ473V	1/10W 47K	2	
R718	ERJ8GEYJ683V	1/8W 68K	1	
R720	ERJ6GEYJ683V	1/10W 68K	1	
R721	ERJ6GEYJ472V	1/10W 4. 7K	1	
R723, 24	ERJ6GEYJ102Z	1/10W 1K	2	
R725, 26	ERJ6GEYJ222V	1/10W 2. 2K	2	
R727	ERJ6GEYJ472V	1/10W 4. 7K	1	
R728	ERJ6GEYJ103V	1/10W 10K	1	
R729	ERJ6GEYJ472V	1/10W 4. 7K	1	
R730	ERJ6GEYJ222V	1/10W 2. 2K	1	

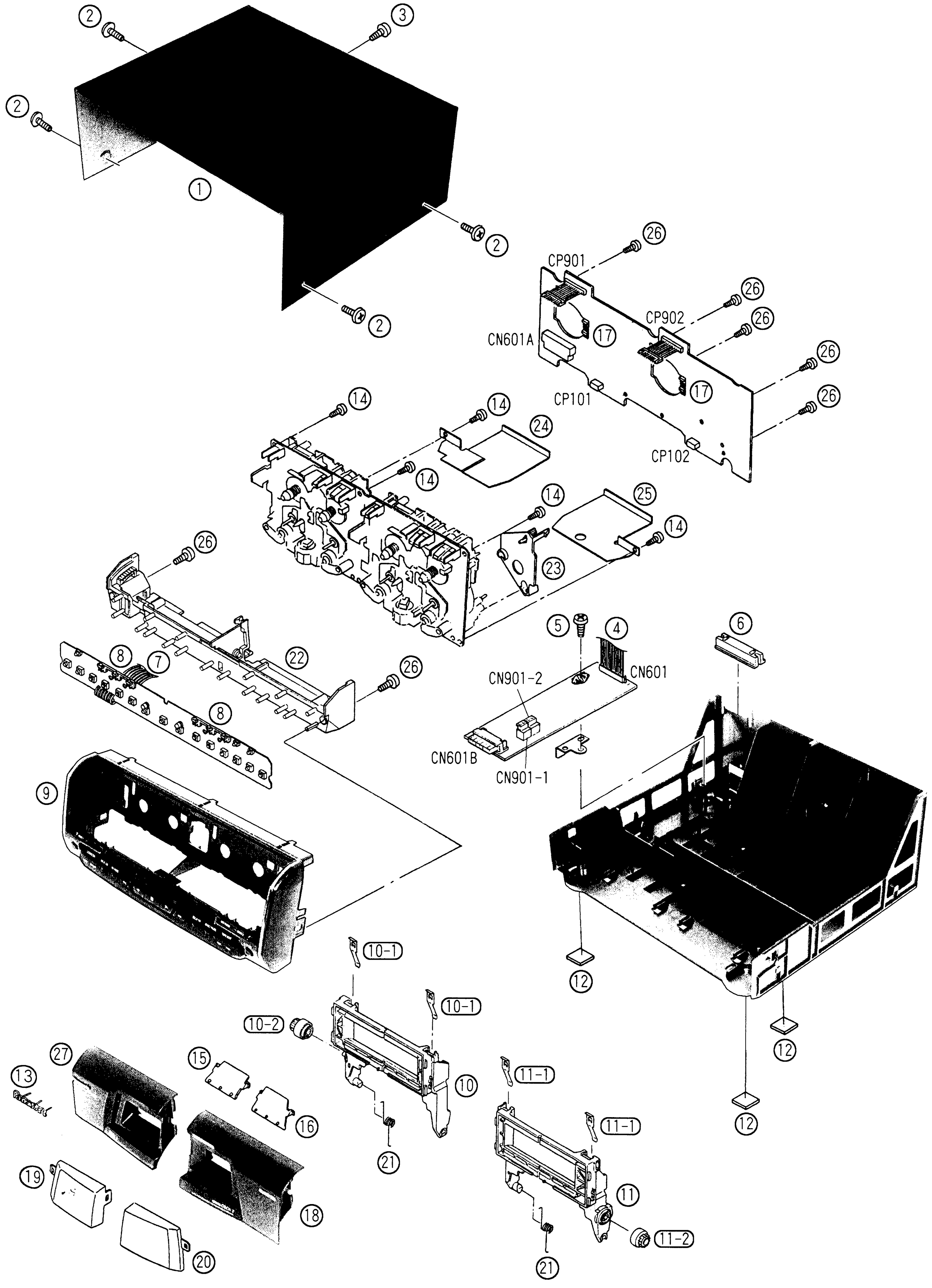
Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
R732	ERJ6GEYJ104V	1/10W 100K	1	
R735	ERJ6GEYJ472V	1/10W 4.7K	1	
R738	ERJ6GEYJ102Z	1/10W 1K	1	
R739	ERJ6GEYJ272V	1/10W 2.7K	1	
R741	ERJ6GEYJ223V	1/10W 22K	1	
R742	ERJ6GEYJ103V	1/10W 10K	1	
R743	ERJ6GEYJ473V	1/10W 47K	1	
R744	ERJ6GEYJ102Z	1/10W 1K	1	
R745	ERJ6GEYJ101Z	1/10W 100	1	
R746	ERJ6GEYJ103V	1/10W 10K	1	
R747	ERJ6GEYJ102Z	1/10W 1K	1	
R801	ERJ6GEYJ184V	1/10W 180K	1	
R802	ERJ6GEYJ561V	1/10W 560	1	
R803, 04	ERJ6GEYJ103V	1/10W 10K	2	
R805	ERJ6GEYJ392V	1/10W 3.9K	1	
R806	ERJ6GEYJ103V	1/10W 10K	1	
R807	ERJ6GEYJ184V	1/10W 180K	1	
R808	ERJ6GEYJ392V	1/10W 3.9K	1	
R809	ERJ6GEYJ822V	1/10W 8.2K	1	
R810, 11	ERJ6GEYJ103V	1/10W 10K	2	
R812	ERJ6GEYJ561V	1/10W 560	1	
R813, 14	ERJ6GEYJ471V	1/10W 470	2	
R817	ERJ6GEYJ105V	1/10W 1M	1	
R818	ERDS2FJ2R2	1/4W 2.2	1	
R819	ERJ6GEYJ105V	1/10W 1M	1	
R820	ERDS2FJ2R2	1/4W 2.2	1	
R821	ERJ6GEYJ102Z	1/10W 1K	1	
R822	ERJ6GEYJ101Z	1/10W 100	1	
R823, 24	ERJ6GEYJ561V	1/10W 560	2	
R900	ERDS2TJ821T	1/4W 820	1	
R901	ERDS2FJ102	1/4W 1K	1	
R902	ERDS2TJ122T	1/4W 1.2K	1	
R903	ERDS2TJ152T	1/4W 1.5K	1	
R904	ERDS2TJ182T	1/4W 1.8K	1	
R905	ERDS2FJ222	1/4W 2.2K	1	
R906	ERDS2TJ332T	1/4W 3.3K	1	
R907	ERDS2FJ472	1/4W 4.7K	1	
R908	ERDS2FJ682	1/4W 6.8K	1	
R909	ERDS2TJ123T	1/4W 12K	1	
R910	ERDS2TJ223T	1/4W 22K	1	
R911	ERDS2TJ683T	1/4W 68K	1	
R912	ERDS2TJ561T	1/4W 560	1	
R914-17	ERDS2FJ102	1/4W 1K	4	
R918	ERDS2TJ391T	1/4W 390	1	
R919	ERDS2TJ561T	1/4W 560	1	
R922	ERDS2TJ391T	1/4W 390	1	
R923	ERDS2TJ561T	1/4W 560	1	
R924	ERDS2TJ821T	1/4W 820	1	
R925	ERDS2FJ102	1/4W 1K	1	
R926, 27	ERDS2TJ473T	1/4W 47K	2	
R928, 29	ERDS2TJ331T	1/4W 330	2	
R930, 31	ERDS2TJ152T	1/4W 1.5K	2	
R951	ERDS2FJ681	1/4W 680	1	
R953, 54	ERDS2FJ393	1/4W 39K	2	
R971	ERDS2FJ681	1/4W 680	1	
R973, 74	ERDS2FJ393	1/4W 39K	2	
RJ1-J3	W5E-18H	CHIP JUMPER	3	
RJ504-06	ERJ6GEY0R00Z	CHIP JUMPER	3	
RJ507	ERJ8GEY0R00V	CHIP JUMPER	1	
S900-07	EVQPTD05Q	SW	8	
S909-15	EVQPTD05Q	SW	7	
S951	RSH1A018-1U	SW	1	
S952, 53	RSH1A019-2U	SW	2	
S971	RSH1A018-1U	SW	1	
S972-76	RSH1A019-2U	SW	5	
VR101-04	EVNDCAA03B24	VR	4	
VR801-03	EVNDCAA03B53	VR	3	
X701	RSXY8M00M06T	OSCILLATOR	1	
Z971	EXBF7L355SYV	COMPONENT COMBINATION	1	

■ Mechanism Parts Location


138
134
138
137
CS971
129
137
CS951
S974
S973
134
S972
S976
S971
S975
S953
S951
S952
137
135
137
135
137
129
108
135
137
108
135
126
118
A
115
107
135
126
118
127
124
132
115
107
127
123
128
128
132
124
128
105
123
116
128
105
110
116
125
110
119
119
125
117
117
114
114
140
A


102-1
101-1
133-1
133-2
133-1
133-2
131-1
130-1
131-1
130-1

■ Cabinet Parts Location


①
②
③
④
⑤
⑥
⑦
⑧
⑨
10-1
10-2
⑩
11-1
11-2
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒
㉓
㉔
㉕
㉖
㉗
CP901
CP902
CN601A
CP101
CP102
CN601
CN901-2
CN601B
CN901-1

Printed in Japan
F971203900HS/KH

HV 7459 ORDER NO. AD9802041A8

Service Manual

Cassette Deck

Stereo Cassette Deck

RS-EH600

Colour

(H) .... Gray Type

Area

(E) .... Europe, Asia, Latin America, Middle East, Africa, New Zealand and Australia.

DD DOLBY B NR *1

Please file and use this manual together with the service manual for Model No. RS-EH600, Order No. AD9712165C3.

Notes:
- This simplified service manual is provided to indicate the differences between the original No. RS-EH600 (GK) and the subsequent model No. RS-EH600 (E).
- All parts are supplied by MESA.

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

System	SC-EH600	SC-EH500	
		For Europe	For others
Sound Processor	SH-EH600	SH-EH500	SH-EH500
Tuner / Amplifier	SA-EH600	SA-EH500	SA-EH500
CD Changer	SL-EH600	—	—
CD Player	—	SL-EH500	SL-EH500
Cassette Deck	**RS-EH600**	**RS-EH600**	**RS-EH600**
Front Speakers*2	SB-EH600	SB-EH600	SB-EH500
Center Speaker*2	SB-PC600	—	SB-PC600
Surround Speakers*2	SB-PS600	—	SB-PS600

*1 : Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol DD are trade marks of Dolby Laboratories Licensing Corporation.

*2 : For Europe...Made in PAES
For others...Made in Singapore

■ Replacement Parts List

Ref. No.	Change of Parts No.		Part Name & Description	Remarks
	RS-EH600(GK) ➡	**RS-EH600(E)**		
CABINET PART(S)				
13	RGB0022-A	**RGB0025-A**	TECHNICS BADGE	

⚠WARNING
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

© 1998 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Printed in Japan
F9802O6000HS/YI

ORDER NO. AD9809172S8

Service Manual

Supplement

Cassette Deck

RS-EH60
RS-EH600
RS-EH1000

Colour(s)

(K) .... Black Type
(H) .... Gray Type
(S) .... Silver Type

Area(s)

(E),(EP) .. Europe, Russia, Asia, Latin America, Middle East, Africa and Oceania.
(GK)........ China.
(GCS) ..... Asia, Latin America, Middle East, Africa and Oceania.

■ This document is supplementary to the following Service Manuals:

Model No.	Area Code	Order No.	Colour
RS-EH60	GK	AD9612222C3	K
	E,EP	AD9703029C8	
RS-EH600	GK,GCS	AD9712165C3	K,H
	E	AD9802041A8	H
RS-EH1000	GK	AD9807139C3	S

■ Purpose

In order to improve the Microcomputer in reliability of Performance at the time the Power switch is set to ON.

Replacement Parts List

Ref. No.	Change of Parts No.		Part Name & Description	Remarks
	Original ➡	**Supplement**		
DIODE(S)				
D701	————	**MA741TX**	DIODE	

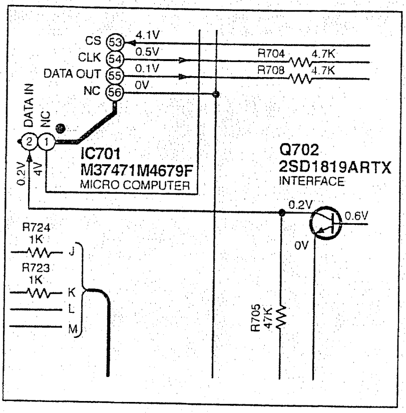
⚠WARNING
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

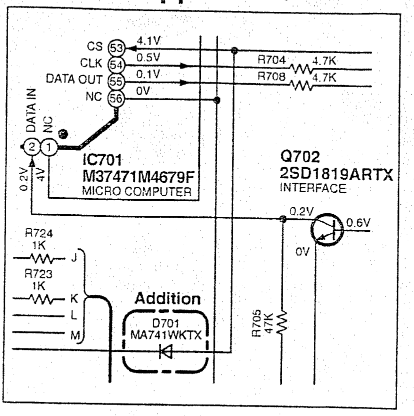
© 1998 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Schematic Diagram

Original

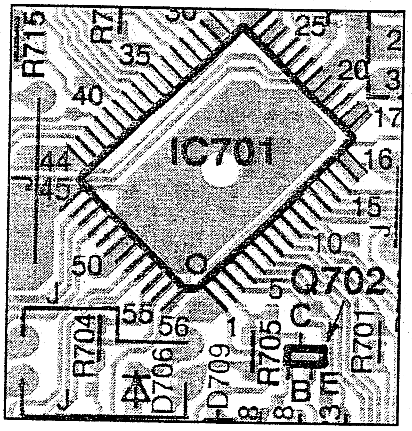

CS 53
4.1V
CLK 54
0.5V
DATA OUT 55
0.1V
NC 56
0V
R704 4.7K
R708 4.7K
DATA IN
NC
2
1
0.2V
4V
IC701
M37471M4679F
MICRO COMPUTER
Q702
2SD1819ARTX
INTERFACE
0.2V
0.6V
0V
R724 1K
J
R723 1K
K
L
M
R705 47K

Supplement

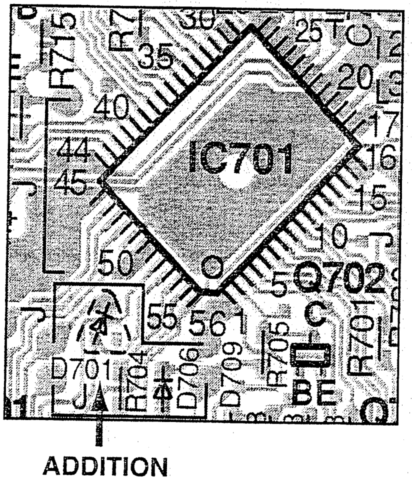

CS 53
4.1V
CLK 54
0.5V
DATA OUT 55
0.1V
NC 56
0V
R704 4.7K
R708 4.7K
DATA IN
NC
2
1
0.2V
4V
IC701
M37471M4679F
MICRO COMPUTER
Q702
2SD1819ARTX
INTERFACE
0.2V
0.6V
0V
R724 1K
J
R723 1K
K
L
M
Addition
D701
MA741WKTX
R705 47K

Printed Circuit Board Diagram

Original


R715
R7
30
25
35
20
40
17
16
IC701
44
45
15
10
50
5
Q702
55
56
1
C
R704
R705
R701
D706
D709
B
E
J

Supplement


R715
R7
30
25
35
20
40
17
16
IC701
44
45
15
10
50
5
Q702
55
56
1
C
D701
R704
D706
D709
R705
R701
B
E
J
ADDITION

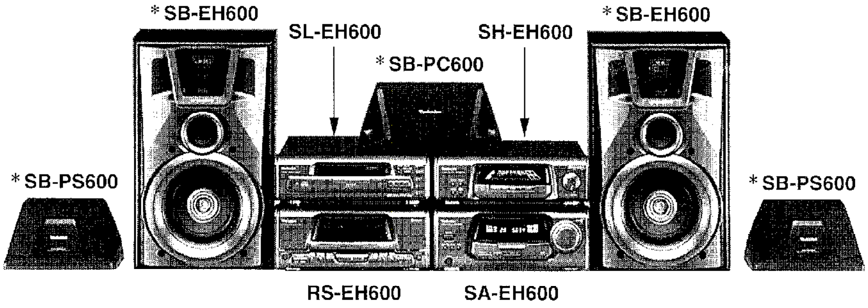
ORDER NO. AD9802037C2

Service Manual

Tuner/Amplifier

SA-EH600

Tuner/Amplifier



Colour
(H) .... Gray Type

Areas
(E) .... Europe
(EB) ...... Great Britain.
(EG)...... Germany and Itary.
(EP) ...... Russia.

System	**SC-EH600**
Sound Processor	SH-EH600
Tuner / Amplifier	**SA-EH600**
CD Changer	SL-EH600
Cassette Deck	RS-EH600
Front Speakers*	SB-EH600
Center Speaker*	SB-PC600
Surround Speakers*	SB-PS600

*: Made in PAES

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Specifications

Amplifier Section

Power output (at HIGH terminal) :	
DIN 1 kHz, THD 1%, both channels driven ;	2 × 70 W(6 Ω)
RMS 1 kHz, THD 10%, both channels driven ;	2 × 100 W(6 Ω)
PRO LOGIC mode (at HIGH terminal) :	
DIN 1 kHz, THD 1%	
MAIN (both channels driven) ;	2 × 50 W(6 Ω)
SURROUND ;	50 W(4 Ω + 4 Ω)
CENTER ;	50 W(8 Ω)
RMS 1 kHz, THD 10%	
MAIN (both channels driven) ;	2 × 70 W(6 Ω)
SURROUND ;	70 W(4 Ω + 4 Ω)
CENTER ;	70 W(8 Ω)
Total harmonic distortion :	
Rated power at 1 kHz ;	1 %(6 Ω)
Half power at 1 kHz ;	0.09 %(6 Ω)
Load impedance :	
MAIN (HIGH/LOW) ;	total impedance 6 Ω
SURROUND ;	4 – 8 Ω
CENTER ;	8 Ω
Input sensitivity/impedance:	
PHONO ;	2.5 mV/47 kΩ
EXTERNAL ;	250 mV/15 kΩ
Output level:	
EXTERNAL RECOUT ;	250 mV/1.5 kΩ
S.WOOFER :	
Center frequency ;	70 Hz
LEVEL (VOL –20 dB)	MID +8 dB MAX +12 dB

FM Tuner Section

Frequency range ;	87.50 – 108.00 MHz (0.05 MHz steps)
Sensitivity ;	1.8 μV (IHF usable)
S/N 26 dB ;	1.5 μV
S/N:	
MONO ;	70 dB (75 dB, IHF)
Antenna terminal(s) ;	75 Ω (unbalanced)

AM Tuner Section

Frequency range:	522 – 1611 kHz (9 kHz steps) 530 – 1620 kHz (10 kHz steps)
Sensitivity (S/N 20 dB) ;	500 μV/m

Timer Section

Clock :	Quartz-lock type
Functions :	Play timer (1 time), Rec timer (1 time), Sleep (120 min, 30 min intervals)
Setting :	1 minute – 23 hours 59 minutes (1 min intervals)

General

Power supply :	
For (E), (EG), (EP) areas ;	AC 230V, 50 Hz
For (EB) area ;	AC 230–240 V, 50 Hz
Power consumption :	205 W
Dimensions :	287 (W) × 118.5 (H) × 343.5 (D) mm
Weight :	5.0 kg

Notes: Specifications are subject to change without notice.
Weight and dimensions are approximate.

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

© 1998 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Contents

Page
Before Repair 2
Protection Circuitry 2
Accessories 2
Caution for AC Main Lead 3
Location of Controls 4
Installation 4
Connections .... 5 – 7
Enjoying RDS Broadcasts 8, 9
Setting the Time 9
Enjoying Sound with DOLBY PRO LOGIC .... 10 – 12
Operation Checks and
Main Component Replacement Procedures .... 13 – 16

Page
To Supply Power Source 17
To Check Operation 17
About the Self-Diagnostic Mode 18
Schematic Diagram .... 19 – 34
Printed Circuit Board Diagram .... 35 – 38
Wiring Connection Diagram 39
Type Illustration of IC's, Transistors and Diodes 40
Terminal Function of IC's 41
Block Diagram .... 42 – 47
Replacement Parts List .... 48 – 53
Cabinet Parts Location 54
Packaging 55

Before Repair

(1) Turn off the power supply. Using a 10 Ω, 10 W resistor, connect both ends of power supply capacitors (C701, C702, C703 and C704) in order to discharge the voltage.

(2) Before turning the power supply on, after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current at 50 Hz in NO SIGNAL mode should be shown below with respect to supply voltage 230 V or 240 V.

Power supply voltage	AC 230 V	AC 240 V
Consumed current 50 Hz	140 ~ 400 mA	140 ~ 400 mA

Protection Circuitry

The protection circuitry may have operated if either of the following conditions is noticed:

* No sound is heard when the power is switched ON.
* Sound stops during a performance.

The functions of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

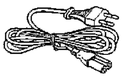
If this occurs, follow the procedure outlined below:

1. Switch OFF the power.
2. Determine the cause of the problem and correct it.
3. Switch ON the power once again.

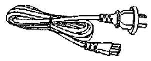
Note:
When the protection circuitry functions, the unit will not operate unless the power is first switched OFF and then ON again.

Accessories

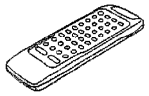
- **AC power supply cord**
  For (E), (EG), (EP) areas (RJA0019-X) ... 1 pc.



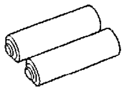
For (EB) area (RJA0053-1X) .... 1 pc.



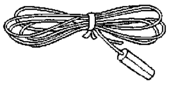
- **Remote control transmitter**
  (RAK-CH219WH) .... 1 pc.



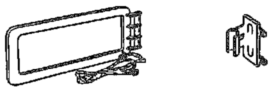
- **Batteries**
  (UM-4, "AAA", R03) .... 2 pcs.
  Note: These are available on sales route.



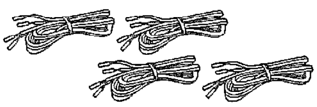
- **FM indoor antenna**
  (RSA0007) .... 1 pc.



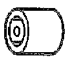
- **AM loop antenna**
  (RSA0022-J) .... 1pc.



- **Speaker cords**
  (REE0393) .... 2 pcs.
  (REE0853) .... 2 pcs.



- **Antenna plug adaptor (SJP9009)**
  For (EB) only (SJP9009) .... 1 pc.



■ Caution for AC Main Lead

("EB" area code model only)

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ◈ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.

THIS PLUG IS NOT WATERPROOF—KEEP DRY.

Before use

Remove the connector cover.

How to replace the fuse

The location of the fuse differ according to the type of AC mains plug (figures A and B). Confirm the AC mains plug fitted and follow the instructions below.
Illustrations may differ from actual AC mains plug.

1. Open the fuse cover with a screwdriver.

Figure A

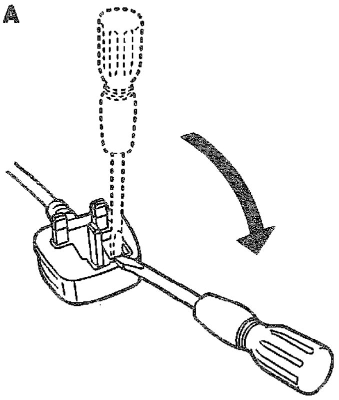
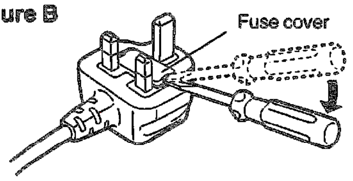


Figure B



2. Replace the fuse and close or attach the fuse cover.

Figure A

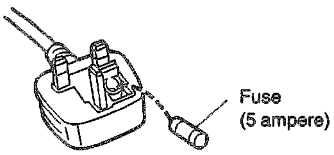
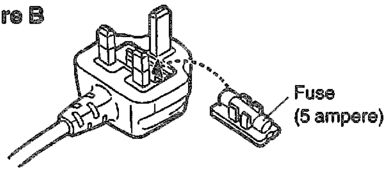
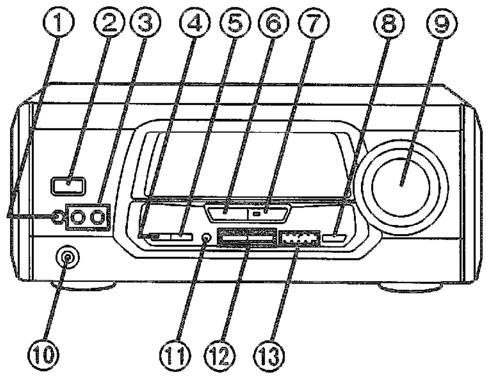


Figure B



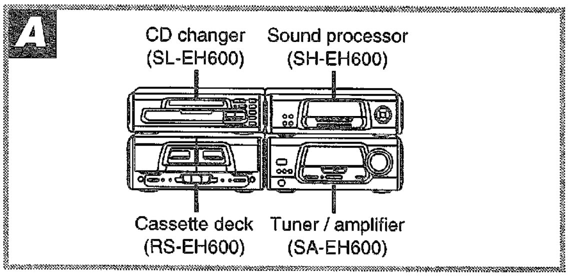
■ Location of Controls

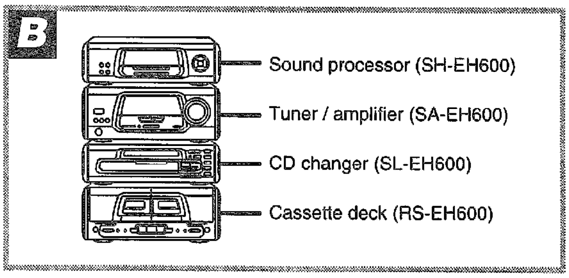

①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬

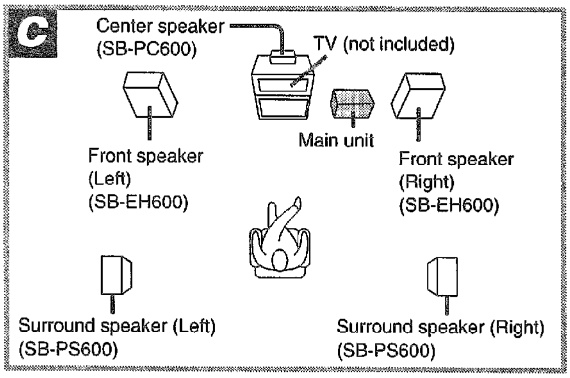
① Clock/timer button (CLOCK/TIMER)
② Power "STANDBY⏻/ON" switch (POWER, STANDBY⏻/ON)
③ Timer on/off buttons (◷ PLAY, ◷ REC)
④ Tuning mode select button (TUNING MODE)
⑤ Set button (SET)
⑥ Source input select button (INPUT SELECTOR)
⑦ Tuner/band select button and indicator (TUNER/BAND)
⑧ Super woofer button (S. WOOFER)
⑨ Volume control (VOLUME)
⑩ Headphones jack (PHONES)
⑪ FM mode select button (FM AUTO/MONO)
⑫ Tuning buttons (TUNING, V, Λ)

For (EG) and (EP) areas
⑬ RDS display mode select buttons (RDS PS–DISP MODE–PTY)

■ Installation


A
CD changer
(SL-EH600)
Sound processor
(SH-EH600)
Cassette deck
(RS-EH600)
Tuner / amplifier
(SA-EH600)


B
Sound processor (SH-EH600)
Tuner / amplifier (SA-EH600)
CD changer (SL-EH600)
Cassette deck (RS-EH600)


C
Center speaker
(SB-PC600)
TV (not included)
Main unit
Front speaker
(Left)
(SB-EH600)
Front speaker
(Right)
(SB-EH600)
Surround speaker (Left)
(SB-PS600)
Surround speaker (Right)
(SB-PS600)

Locating the components

Side-by-side set-up **A**
Stacking **B**

Placement of speakers **C**

As well as enjoying normal stereo reproduction with the left and right front speakers, a center speaker and surround speakers can also be connected to the unit in order to enjoy the sound performance of DOLBY PRO LOGIC Systems.

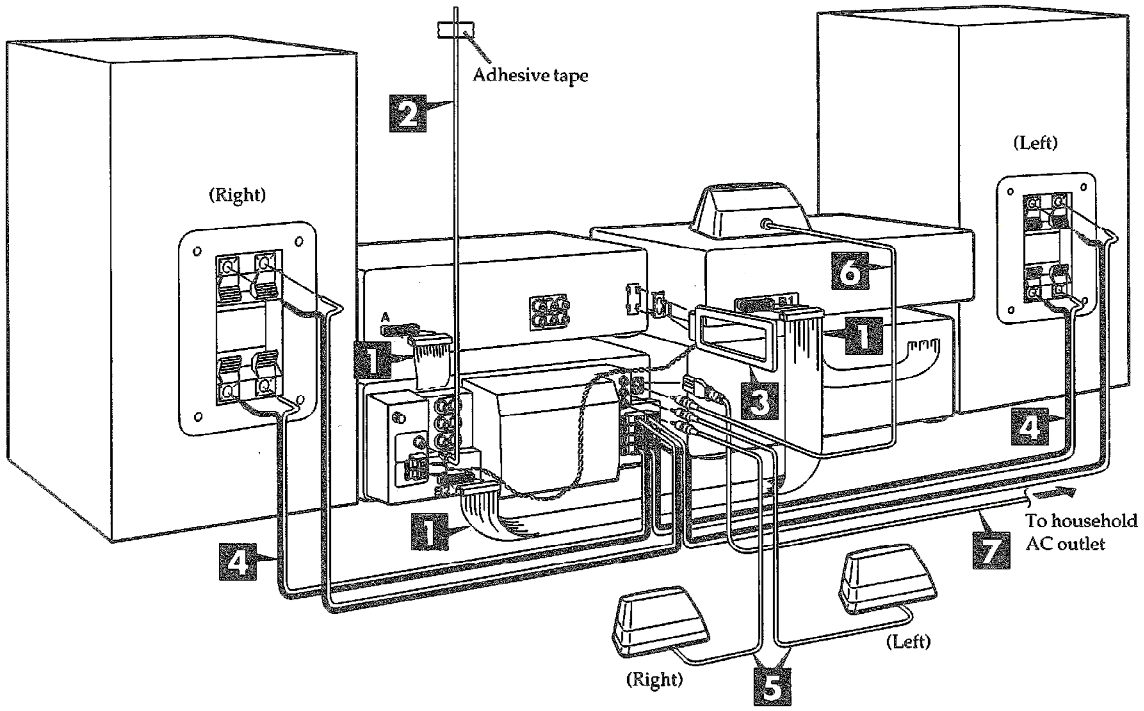
We recommend that surround speakers be placed on the side of or slightly behind the listener, and about one meter higher than ear level.
However the position should be adjusted to your personal preference, because the effect varies to some degree depending upon the type of music and the music source.

Note for front/center speakers
These speakers are made so as to be able to be used in close proximity to the TV, but irregular coloring may result due to how the system is placed. If such distortion occurs, turn off the TV for sometime between 15 and 30 minutes. The demagnetizing function of the TV will eliminate the distortion. If the irregular coloring is still visible, then move the speaker further away from the TV.
Please note that if there is a magnetic object near the TV, irregular coloring may result due to the interaction between the TV and the speakers.

■Connections

Connect the AC power supply cord after you have connected all other cables.

To prepare the AM loop antenna wire, FM indoor antenna and speaker cords, twist the vinyl cover tip and pull off.

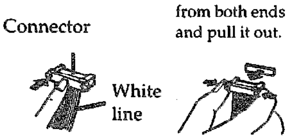

Adhesive tape
2
(Right)
(Left)
6
1
A
1
3
4
1
To household AC outlet
7
4
(Left)
(Right)
5

1

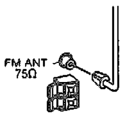
To connect cables

To unplug cables

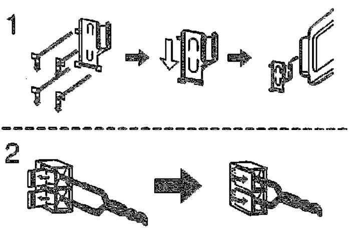
Hold the connector from both ends and pull it out.


Connector
White line

2

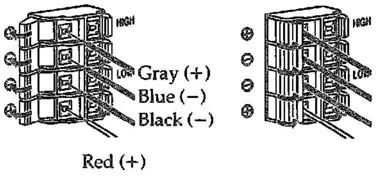


3

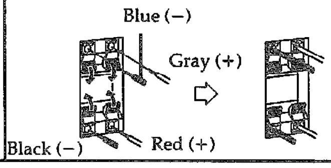


4

Tuner/amplifier side

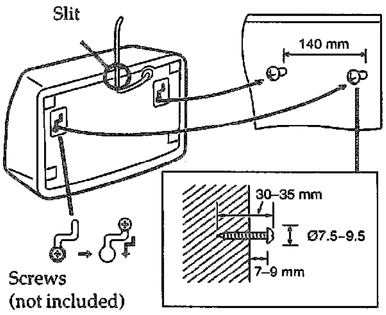

HIGH
LOW
Gray (+)
Blue (−)
Black (−)
Red (+)

Speaker side


Blue (−)
Gray (+)
Black (−)
Red (+)

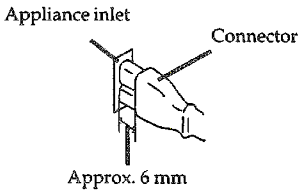
5

Attaching to wall


Slit
140 mm
30–35 mm
Ø7.5-9.5
7–9 mm
Screws
(not included)

7

(Insertion of Connector)


Appliance inlet
Connector
Approx. 6 mm

1 Connect the flat cables.

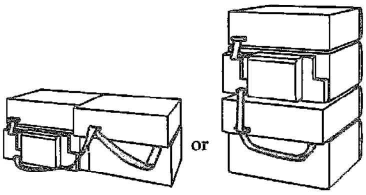
1. Connect the shorter flat cable from the tuner/amplifier to terminal A on the sound processor.
2. Connect the longer flat cable from the cassette deck to terminals B1 and B2.

Note

Do not try connecting or disconnecting the flat cables while the power is switched to ON.

After connection:

Keep cables as flat against the back of the unit as possible.



2 Connect the FM indoor antenna.

Tape the antenna to a wall or column, in a position where radio signals are received with the least amount of interference.

Note

When you cannot get good reception with this FM indoor antenna, we recommend you install an FM outdoor antenna (not included).

3 Connect the AM loop antenna.

1. Attach the antenna holder to the rear panel of the sound processor.
   Then clamp the antenna into the antenna holder.
2. Connect the antenna terminal to the rear panel of the tuner/amplifier.

Note

To minimize noise pickup, bundle the loop antenna cord using tape or the like to keep the flat cables away from the AM loop antenna cord.

4 Connect the right (R) and left (L) front speaker cables.

Connect each end of the speaker cables to the terminal lever of the same color.

Note

- To prevent damage to circuitry, never short-circuit positive (+) and negative (−) speaker wires.
- Be sure to connect only positive (red or gray) wires to positive (+) terminals and negative (black or blue) wires to negative (−) terminals.
- Left and right front speakers are exactly the same.

5 Connect the surround speaker cables.

Check the L (Left) or R (Right) channels indication on the underside of the speakers for correct placement. Place the speakers with the Technics logo facing forward the listening position.

Attaching to wall

- Set speaker onto screws and slide through bracket kink to lock into position.
- The wall or pillar on which the speaker systems are to be attached should be capable of supporting a weight of 5 kilograms.
- Feed wire through slit to fix from center-top of speaker.

6 Connect the center speaker cables.

7 Connect the AC mains lead.

(United Kingdom only)
BE SURE TO READ THE CAUTION FOR AC MAINS LEAD ON PAGE 3 BEFORE PROCEEDING TO STEP 7.

Insertion of Connector

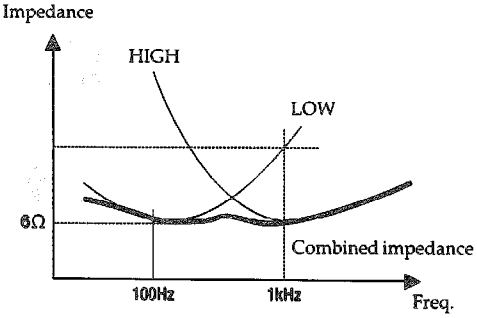
Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing.
However there is no problem using the unit.

Speaker Caution

Use the speakers only with the recommended system. Failure to do so may lead to damage to the amplifier and/or the speaker, and may result in the risk of fire. Consult a qualified service person if damage has occurred or if you experience a sudden change in performance.

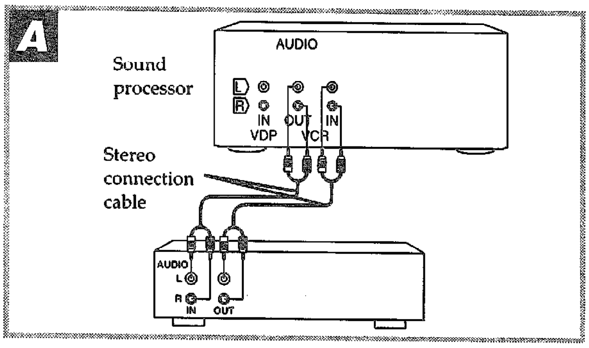
When speakers are connected to the LOW and HIGH terminals on the back of the main unit

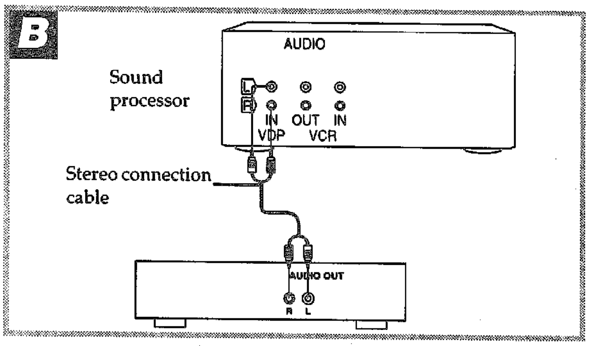
They are designed to have a combined impedance of 6Ω.

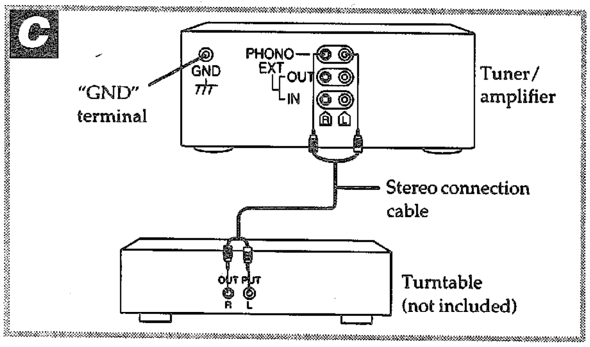


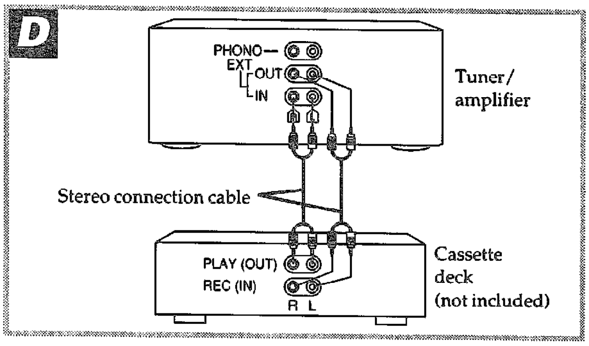
Note

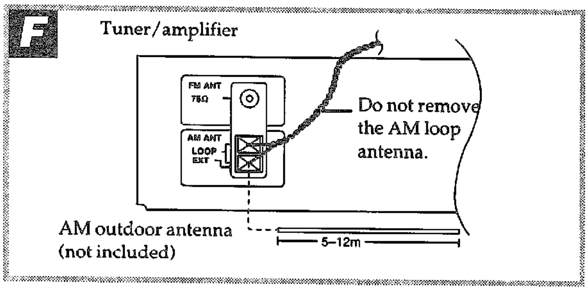
Never use speakers other than those supplied. (SB-EH600) For instance, if you connect speakers with an impedance of 6Ω each and plug them into the LOW and HIGH terminals, you will only have a combined impedance of 3Ω


A
AUDIO
Sound processor
L
R
IN
OUT
IN
VDP
VCR
Stereo connection cable
AUDIO
L
R
IN
OUT


B
AUDIO
Sound processor
L
R
IN
OUT
IN
VDP
VCR
Stereo connection cable
AUDIO OUT
R
L


C
"GND" terminal
GND
PHONO—
EXT
OUT
IN
Tuner/ amplifier
Stereo connection cable
OUT PUT
R
L
Turntable (not included)


D
PHONO—
EXT
OUT
IN
Tuner/ amplifier
Stereo connection cable
PLAY (OUT)
REC (IN)
R
L
Cassette deck (not included)


F
Tuner/amplifier
FM ANT
75Ω
AM ANT
LOOP
EXT
Do not remove the AM loop antenna.
AM outdoor antenna (not included)
5–12m

External unit connections

- Make sure that the power supply for all components has been turned off before making any connections.
- For details, refer to the operating instructions of the units which are to be connected.
- All peripheral components and cables sold separately.

Stereo connection cable
White (L)
Red (R)

A Video Cassette recorder

B Laser disc player

C Turntable

"GND" terminal:
This terminal is for a ground wire.

D Cassette deck

Optional antenna connections

You may need an outdoor antenna if you use this system in a mountainous region or inside a reinforced-concrete building, etc.

FM outdoor antenna (not included) E

Note

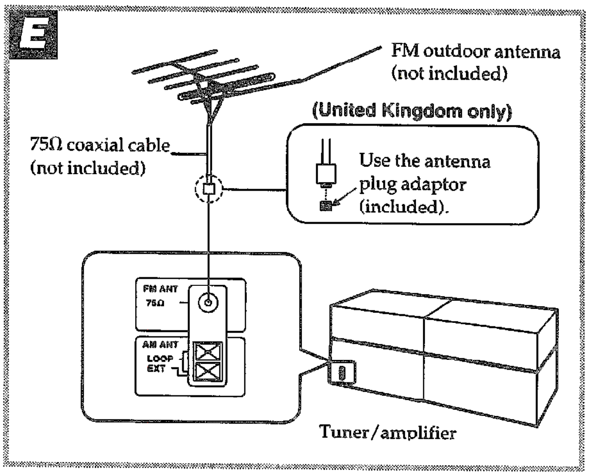
An outdoor antenna should be installed by a qualified technician only.

AM outdoor antenna (not included) F

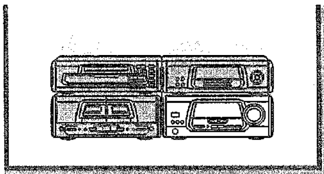
Connect the outdoor antenna without removing the AM loop antenna. Run 5 to 12 m of vinyl-covered wire horizontally along a window or other convenient location.

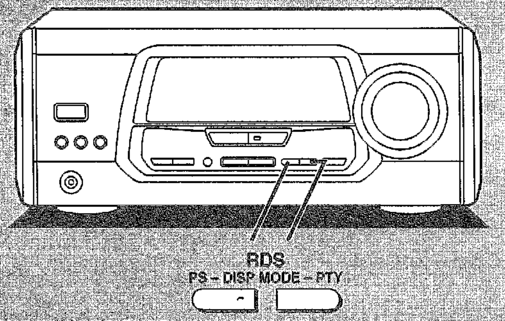
Note

When the unit is not in use, disconnect the outdoor antenna to prevent possible damage that may be caused by lightning. Never use an outdoor antenna during an electrical storm.


E
FM outdoor antenna (not included)
(United Kingdom only)
75Ω coaxial cable (not included)
Use the antenna plug adaptor (included).
FM ANT
75Ω
AM ANT
LOOP
EXT
Tuner/amplifier

■ Enjoying RDS Broadcasts [For (EG) and (EP) areas]





This unit lets you take advantage of the Radio Data System (RDS) in areas where RDS broadcast services are received. This advanced system provides useful information, utilizing a 57 kHz subcarrier above the audible range, in addition to the main FM signal.

Types of RDS and functions

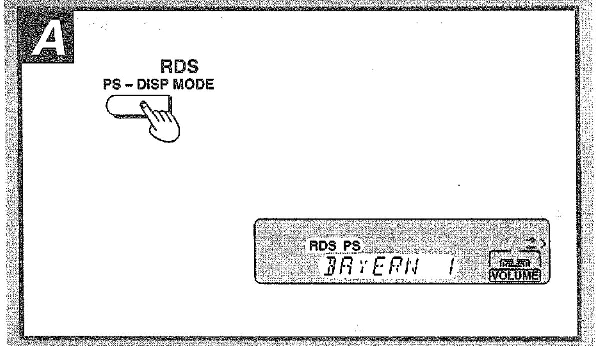
To display the name of a broadcast station (PS display):
When this system receives a PS signal in an RDS broadcast, the name of the broadcast station is shown on the display.

To display the type of a program (PTY display):
While the PTY signal is being received, the name of the type of program currently being broadcast can be shown on the display.

Notes

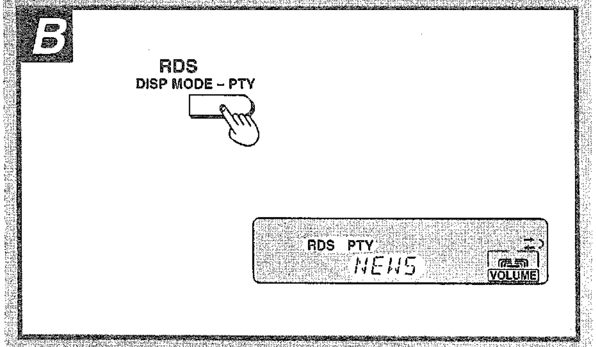
- Even if an FM broadcast station is transmitting RDS signals, the functions of this system may not be able to utilize these signals if the signal quality is too poor.
- "PTY" may not be available in some areas. (Future function)

To display the name of a broadcasting station A



(When the FM station is received)
Press PS-DISP MODE.
If the FM broadcast being received provides the RDS service ("RDS" indicator will light), the name of the broadcast station and "PS" indicator will be shown on the display of this system.
Each time you press the button, frequency display and PS display will appear alternately.

To display the type of a program B



(When the FM station is received)
Press DISP MODE-PTY.
If the FM broadcast being received provides the RDS service ("RDS" indicator will light), the type of the program and "PTY" indicator will be shown on the display of this system.
Each time you press the button, frequency display and PTY display will appear alternately.

Note

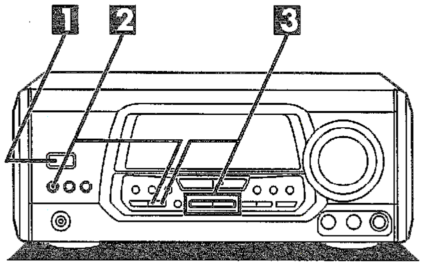
When receiving a broadcast station, in PTY mode, which does not transmit PTY, the display will not show "NO PTY" automatically.

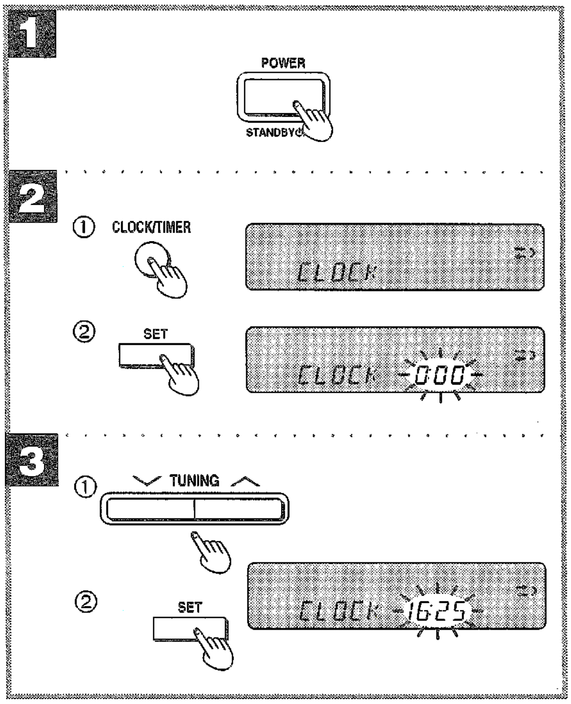
About the PTY display

There are a total of 15 PTY displays on this unit. The table gives an explanation of each display.

Display	Explanation
NEWS	Short accounts of facts, events and publicly expressed views, reportage and actuality.
AFFAIRS	Topical program expanding or enlarging upon the news, generally in different presentation style or concept, including documentary debate, or analysis.
INFO	Program whose purpose is to impart advice in the widest sense, including meteorological reports and forecasts, consumer affairs, medical help, etc.
SPORT	Program concerned with any aspect of sport.
EDUCATE	Program intended primarily to educate.
DRAMA	All radio plays and serials.
CULTURE	Programs concerned with any aspect of national or regional culture, including religious affairs, philosophy, social science, language, theatre, etc.
SCIENCE	Programs about the natural sciences and technology.
VARIED	Used for mainly speech-based programs, usually of a light-entertainment nature not covered by above categories. Examples are: quizzes, panel games, personality interviews, comedy and satire.
POP M	Commercial music which would generally be considered to be of current popular appeal, often featuring in current or recent record sales charts.
ROCK M	Contemporary modern music, usually written and performed by young musicians.
M.O.R.M	(Middle of the Road Music). Common term to describe music considered to be "easy-listening", as opposed to Pop, Rock or Classical. Music in this category is often, but not always, vocal, and usually of short duration (<5 min.).
LIGHT M	Classical Musical for general, rather than specialist, appreciation. Examples of music in this category are instrumental music and vocal or choral works.
CLASSICS	Performances of major orchestral works, symphonies, chamber music etc., and including Grand Opera.
OTHER M	Musical styles not fitting into any of the above categories. Particularly used for specialist music, of which Jazz, Rhythm & Blues, Folk, Country, and Reggae are examples.

■Setting the time





The tuner/amplifier displays the time, frequency and other information on CDs and tapes.

This is a 24-hour display clock.

The figure shows how to set the time for 16:25.

1 Switch on the power.

2 ① Press CLOCK/TIMER to show “CLOCK”.

Every time you press the button, the indication changes in the order of CLOCK→◷ PLAY→◷ REC→Original display.

Within 5 seconds:

② Press SET.

3 ① Press TUNING (∨ or ∧) to set the present time on the display.

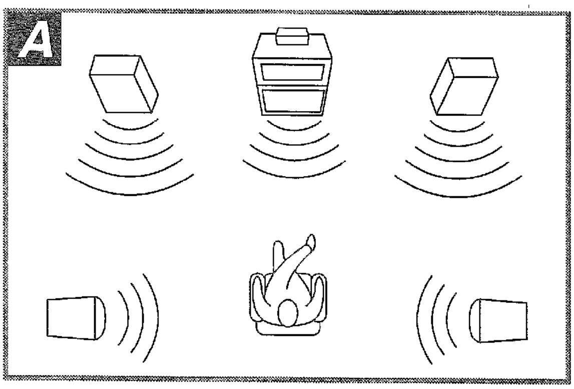
The time display can be changed in one minute units by tapping the buttons, and quickly by holding down the buttons.

② Press SET.

The display will return to the previous display after about 3 seconds.

■ Enjoying Sound with DOLBY PRO LOGIC

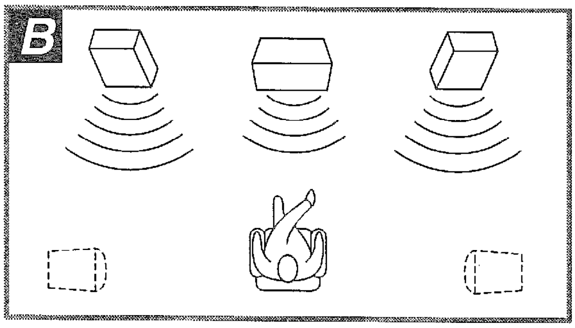
By combining front, center and surround speakers, you can enjoy the SURROUND mode which conveys a feeling of presence or the 3 STEREO mode which conveys a feeling of orientation.



SURROUND A

By reproducing the feeling of depth and movement of sound, video software or compact discs recorded with DOLBY SURROUND provide the listener with the sensations of a movie theater.

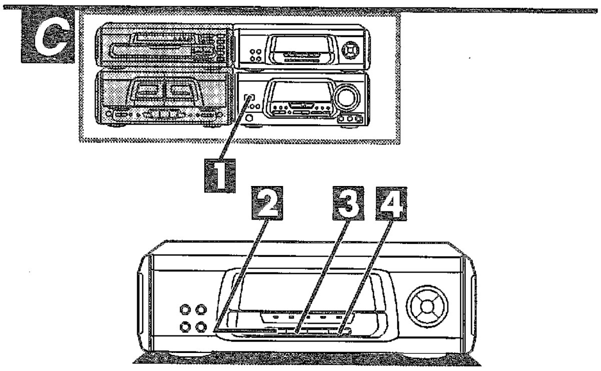
To enjoy SURROUND, be sure to connect the surround speakers.

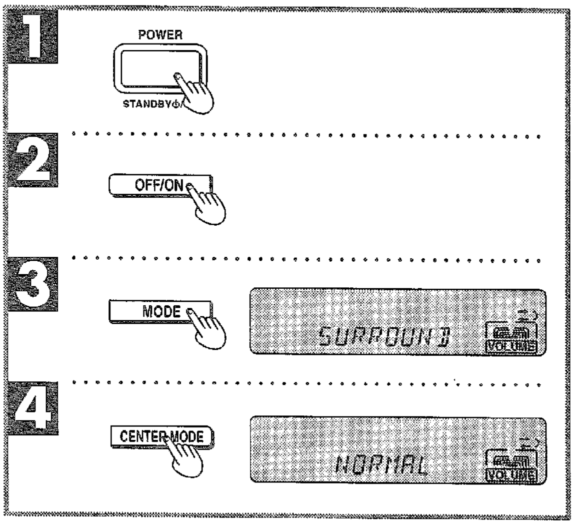


3 STEREO B

You can enjoy audio/video sources with clear sound, more presence and enhanced orientation. 3 STEREO can be used with sources not recorded in DOLBY SURROUND.
To enjoy 3 STEREO, be sure to connect the center speaker.

> Manufactured under license from Dolby Laboratories Licensing Corporation.
> DOLBY, the double-D symbol ꟷ and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.





Setting the center mode C

For Dolby Pro Logic systems, center mode setting is necessary to play back bass sounds effectively. Set the center mode in accordance with the size of your center speaker.

1 Switch on the power.

2 Press DOLBY PRO LOGIC OFF/ON to select ON.

3 Press MODE to select "SURROUND" or "3 STEREO".

Each time you press the button, the display will change as follows:
SURROUND→3 STEREO
↑___________________|

The selected mode's indicator lights.

4 Press CENTER MODE to select "NORMAL" mode.

Each time you press the button, the display will change as follows:
NORMAL→WIDE→PHANTOM
↑___________________________|

The selected mode's indicator lights.

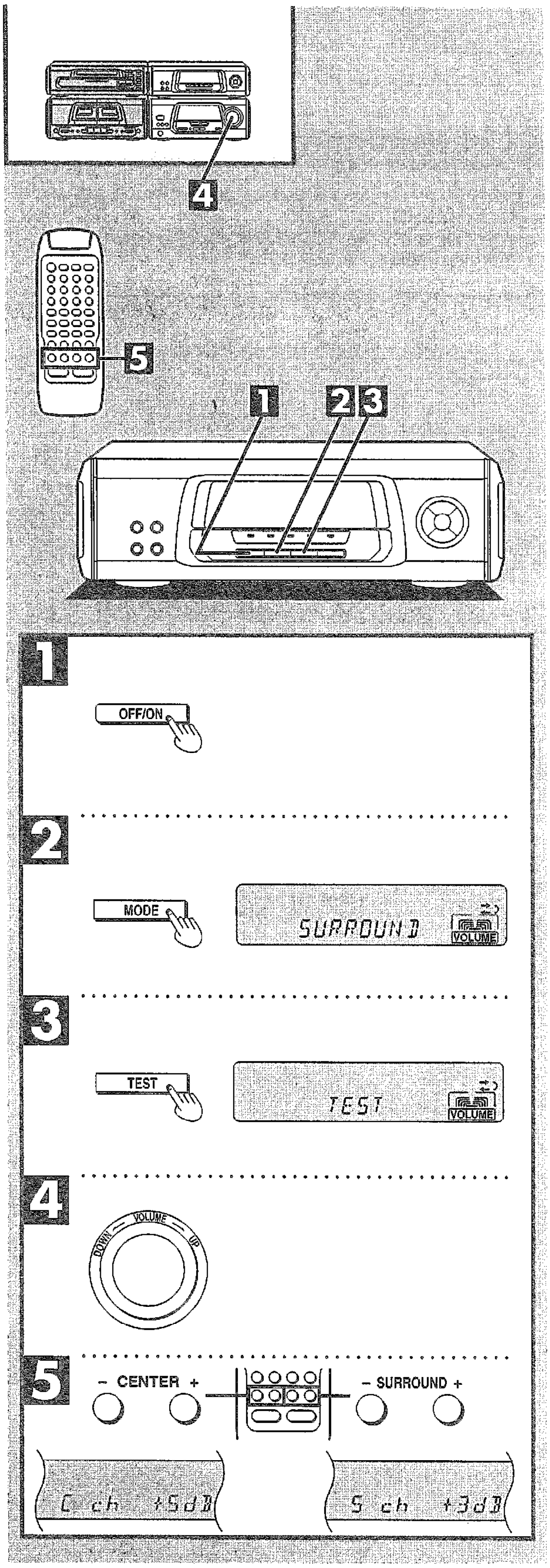
Note

"PHANTOM" will not be displayed when you select "3 STEREO" in step 3.

NORMAL:
When the center speaker is smaller than the front speakers
WIDE:
When the center speaker is the same size or larger than the front speakers
PHANTOM: SURROUND only
When no center speaker is connected

Note

In the PHANTOM mode, the sound which would have been sent to the center speaker will be divided equally between both the left and right front speakers.



Adjusting speaker output level

In order to reproduce the movement of the sound and its clear orientation, it is important to adjust the output level of each speaker. Adjust output to the correct levels while listening to the test signal.

1 Press DOLBY PRO LOGIC OFF/ON to select ON.

2 Press MODE to select "SURROUND" or "3 STEREO".

Each time you press the button, the display will change as follows:

SURROUND→3 STEREO
↑_______________|

3 Press TEST to output a test signal.

The test signal is emitted in the following order:

For SURROUND mode

Front speaker (left)————→Center speaker
↑ ↓
Surround speakers (left, right)←—Front speaker (right)

Note

The test signal is not emitted from the center speaker when the center mode is on PHANTOM.

For 3 STEREO mode

Front speaker (left)→Center speaker→Front speaker (right)
↑_______________________________|

4 Turn VOLUME to set the volume level normally used for enjoying the source.

5 Press CENTER (–) or (+) or SURROUND (–) or (+) on the remote control to adjust the output level balance.

Adjust the output level of each speaker from the listening position until they are all identical.

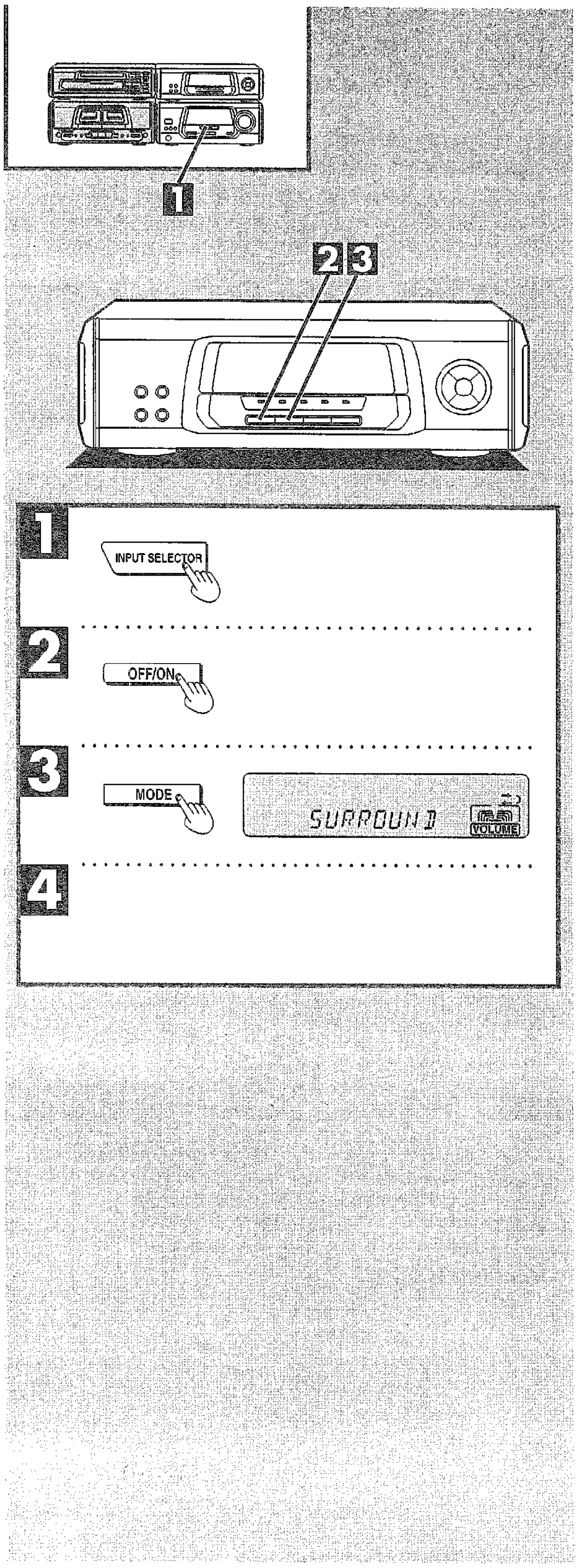
Output levels can be varied within a range of ±12 dB with front speaker output level serving as the zero point.

Notes

- The test signal is output only by the speaker you are now adjusting and does not repeat the sequence until adjustments are complete.
- Remember you cannot adjust the output level of the surround speakers if you selected the 3 STEREO mode in step 2.

To stop the test signal:

Press TEST.



Enjoying SURROUND or 3 STEREO

Before trying anything, have you set the center mode and adjusted speaker output level?
When viewing a video, turn on the power supply for the TV and set the TV to video mode.

1 Press INPUT SELECTOR to select the desired external source.

Each time you press this button, sound sources will be switched as follows.

TUNER——→CD——→TAPE
↑ ↓
PHONO←VDP←VCR←EXT

These indications correspond to terminals on the rear panel of the sound processor or tuner/amplifier. Switch the displayed indication to the source you want to use.

2 Press DOLBY PRO LOGIC OFF/ON to select ON.

3 Press MODE to select "SURROUND" or "3 STEREO".

4 Start the desired source.

To operate external sources, refer to the operating instructions provided with the specific unit.

Note

When using SURROUND, use software recorded in Dolby Surround.

To turn off the DOLBY PRO LOGIC systems:

Press DOLBY PRO LOGIC OFF/ON to select "OFF".

Note

You cannot record acoustical effects produced in the SURROUND and 3 STEREO modes.

■ Operation Checks and Main Component Replacement Procedures

NOTE

1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**
3. **Select items from the following index when checks or replacement are required.**
4. **Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.**

• Contents

■ Checking Procedure for each P.C.B. Page.

1. Checking for the tuner P.C.B., dolby prologic P.C.B. and power supply P.C.B.. •••••••• 13.
2. Checking for the operation P.C.B.. •••••••• 14.
3. Checking for the main P.C.B.. •••••••• 14,15.

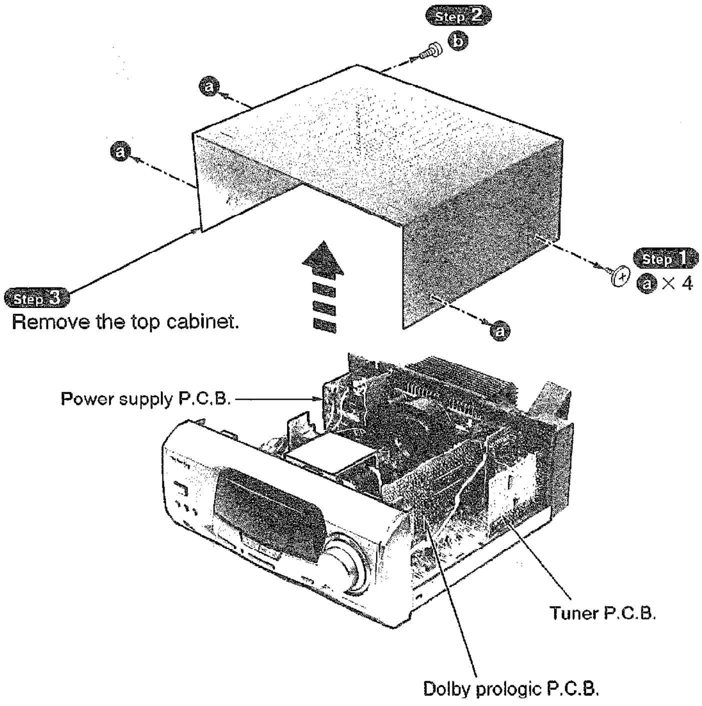
■ Main Component Replacement Procedures

1. Replacement for the power IC and regulator transistor. •••••••• 16.

■ Checking Procedure for each P.C.B.

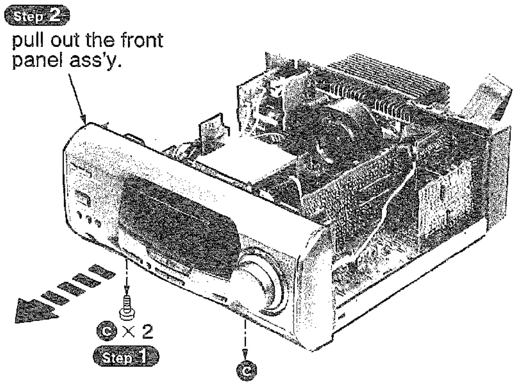
1. Checking for the tuner P.C.B., dolby prologic P.C.B. and power supply P.C.B.

• **Check the tuner P.C.B., dolby prologic P.C.B. and power supply P.C.B. as shown below.**

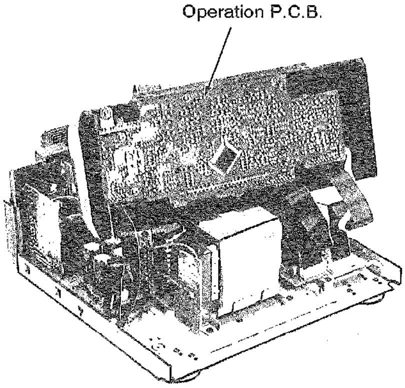


2. Checking for the operation P.C.B.

- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 13.

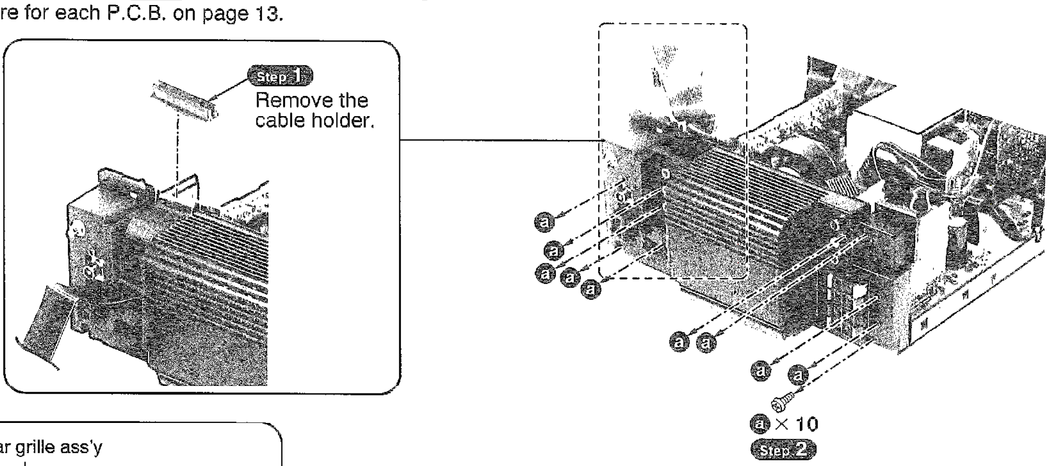

Step 2
pull out the front panel ass'y.
c × 2
Step 1
c

- **Check the operation P.C.B. as shown below.**

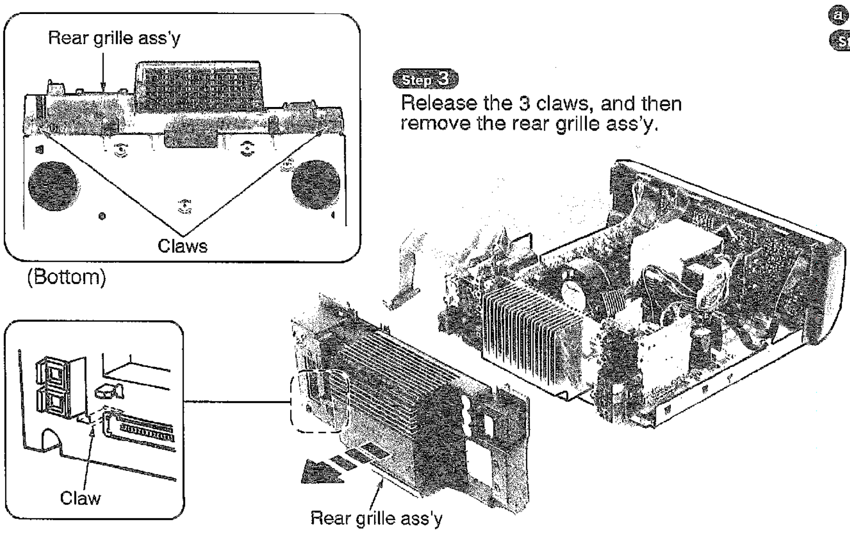

Operation P.C.B.

3. Checking for the main P.C.B.

- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 13.

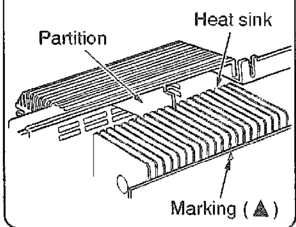

Step 1
Remove the cable holder.
a
a
a
a
a
a
a
a
a
a × 10
Step 2

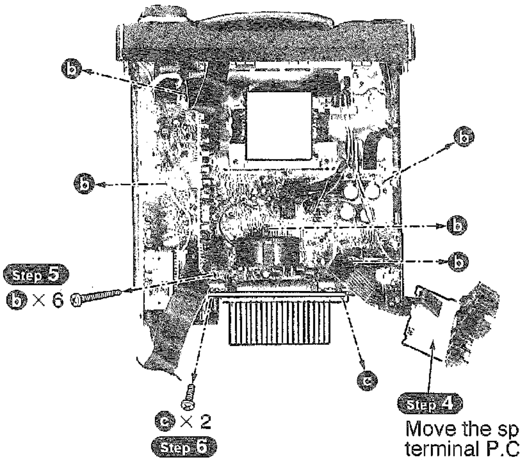
Step 3
Release the 3 claws, and then remove the rear grille ass'y.


Rear grille ass'y
Claws
(Bottom)
Claw
Rear grille ass'y

■ Notice for installation of rear grille ass'y

Align the partition of rear grille ass'y with the marking (▲) on the heat sink.

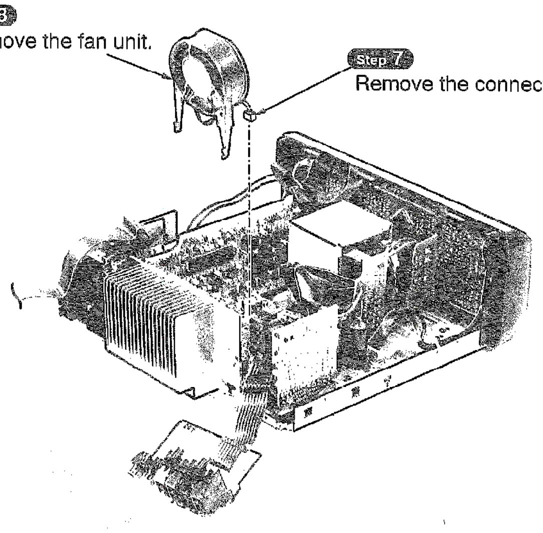

Heat sink
Partition
Marking (▲)



Step 5
ⓑ × 6

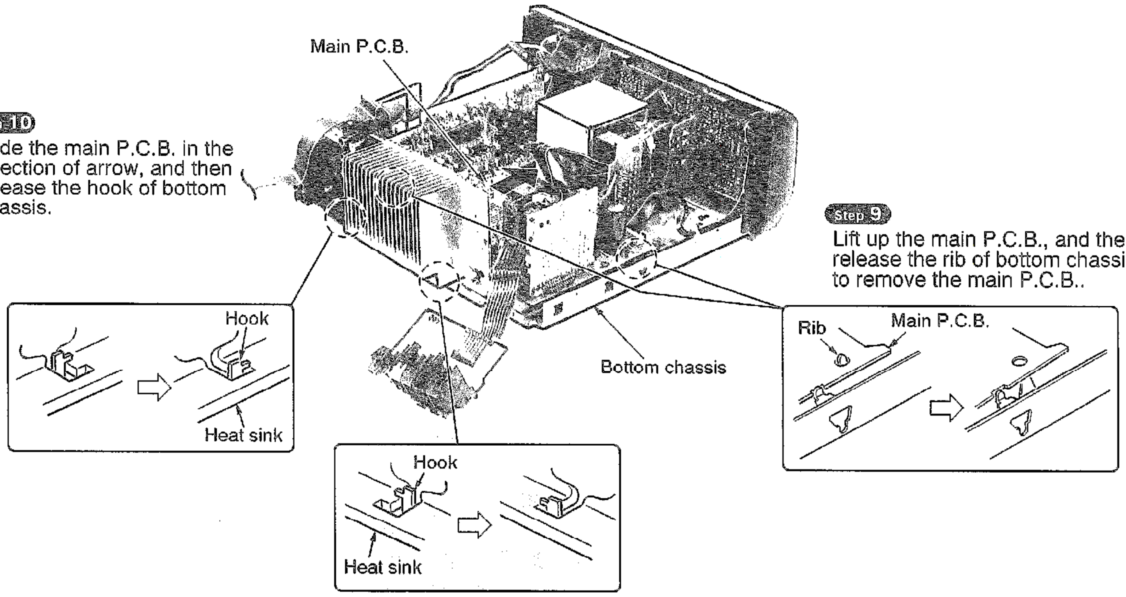
ⓒ × 2
Step 6

Step 4
Move the speaker terminal P.C.B. out of the unit.



Step 8
Remove the fan unit.

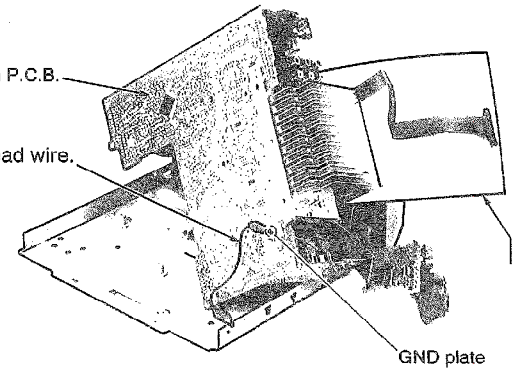
Step 7
Remove the connector.


Main P.C.B.
Hook
Heat sink
Hook
Heat sink
Bottom chassis
Rib
Main P.C.B.

Step 10
Slide the main P.C.B. in the direction of arrow, and then release the hook of bottom chassis.

Step 9
Lift up the main P.C.B., and then release the rib of bottom chassis to remove the main P.C.B..

- **Check the main P.C.B. as shown below.**


Main P.C.B.
GND plate

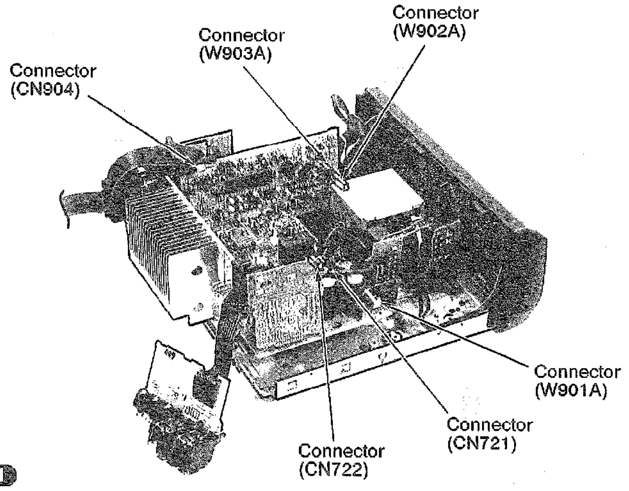
Step 11
Connect the lead wire.

NOTE
Insulate main P.C.B. with insulation material to avoid short–circuit.

Main Component Replacement procedures

1. Replacement for the power IC and regulator transistor

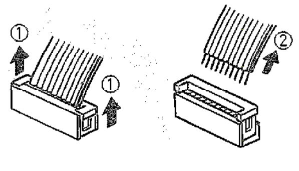
- Follow the Step 1 ~ Step 3 of the item 1 in checking procedure for each P.C.B. on page 13.
- Follow the Step 1 ~ Step 10 of the item 3 in checking procedure for each P.C.B. on pages 14 and 15.


Connector (W902A)
Connector (W903A)
Connector (CN904)
Connector (W901A)
Connector (CN721)
Connector (CN722)

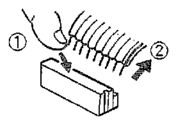
Step 1
Remove the flat cables from connectors.

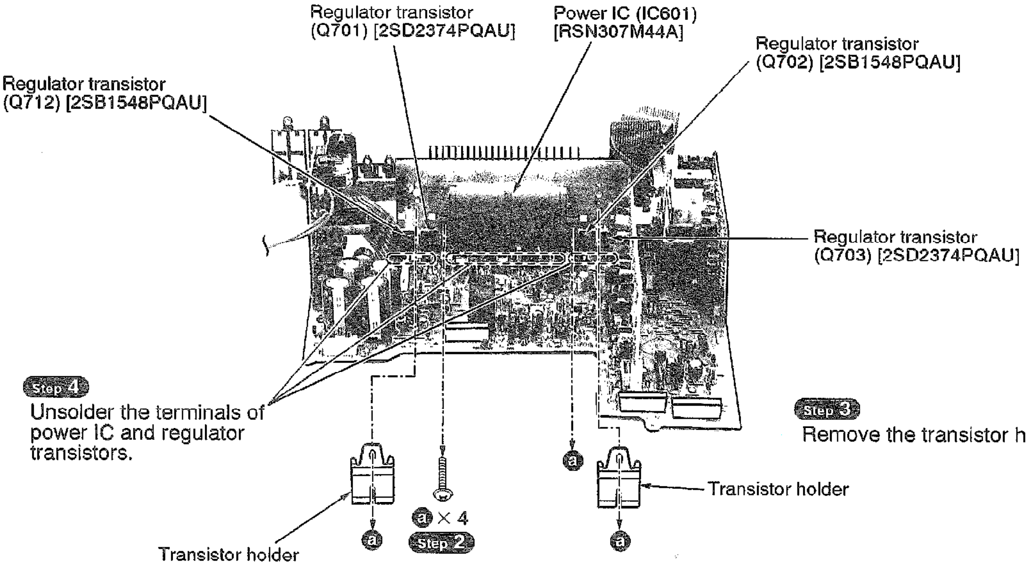
Removal of the connector

- Connectors (W901A, W902A, W903A)



- Connectors (CN721, CN722, CN904)




Regulator transistor (Q701) [2SD2374PQAU]
Power IC (IC601) [RSN307M44A]
Regulator transistor (Q702) [2SB1548PQAU]
Regulator transistor (Q712) [2SB1548PQAU]
Regulator transistor (Q703) [2SD2374PQAU]
Transistor holder
Transistor holder
ⓐ
ⓐ
ⓐ
ⓐ × 4

Step 4
Unsolder the terminals of power IC and regulator transistors.

Step 2

Step 3
Remove the transistor holder.

NOTE
When mounting the power IC or regulator transistor apply silicone conpound (RFKX0002) to the rear side of power IC or regulator transistors.

■ To Supply Power Source

This unit SA-EH600 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig.1)

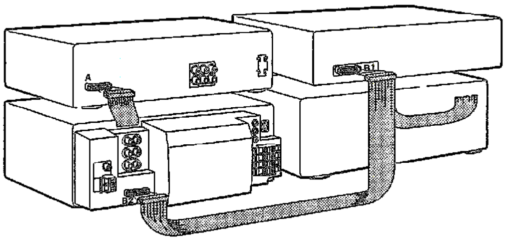


Fig. 1

When you have to test and service the unit SA-EH600 alone, use the following method to supply power source and operate the unit:

1. Short the section between **7 pin** and **10 pin** of the connector **W202** in Fig. 2.
2. Connect this unit to an AC Power Cord.
   (This unit come to stand-by mode.)
3. Turn the unit ON.

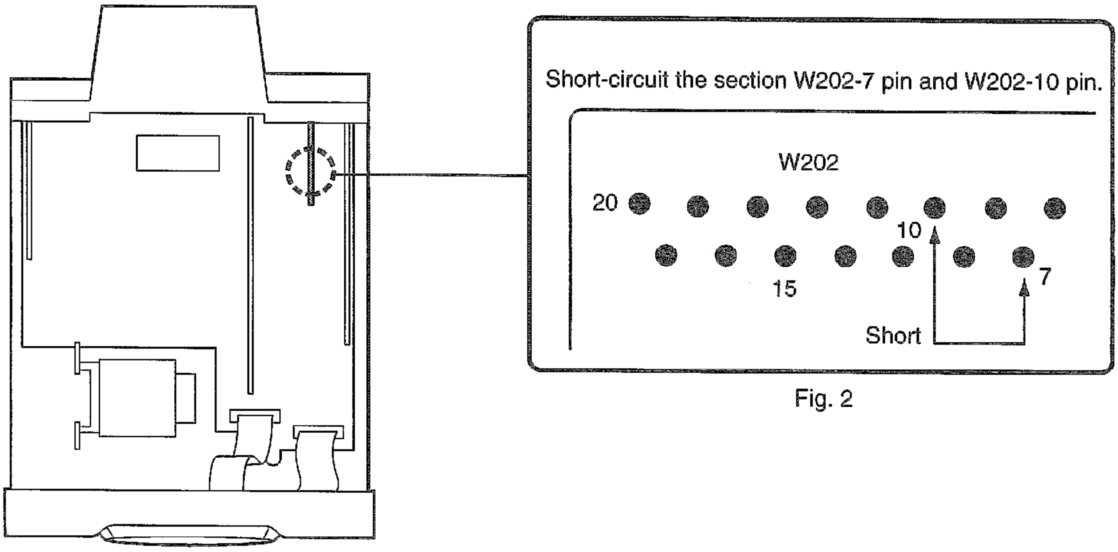


Fig. 2

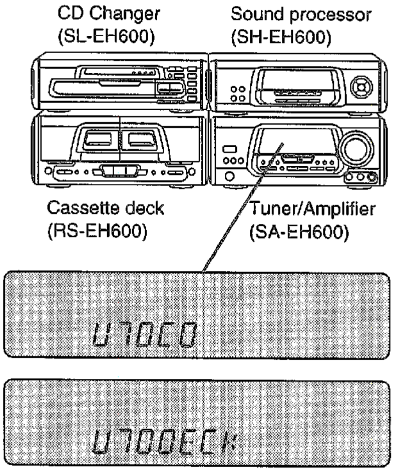
■ To Check Operation

1. Set this unit to Power ON mode.
2. Input a signal and confirm it to be outputted from the speaker terminal.

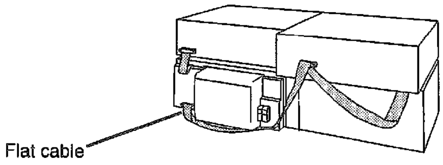
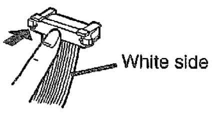
	INPUT	OUTPUT
L-ch	EXT IN	L-ch speaker terminal
R-ch	EXT IN	L-ch speaker terminal
Surround	EXT IN	Surround speaker terminal
Center	EXT IN	Center speaker terminal

■About the Self-Diagnostic Mode

This unit is equipped with a self-diagnostic function which, in the event of a malfunction, automatically displays a code indicating the nature of the malfunction. Use this self-diagnostic function when servicing the unit.

Display method	Display location
To display the malfunction code U-70 CD: U-70 DECK: ..... Automatically displays on the tuner/sound processor when a malfunction occurs. F-61 .... Automatically displays on the tuner/sound processor when a malfunction occurs. **To return to the normal display** **1. For U-70 CD/U-70 DECK:** ● Press an any operation button on the tuner/amplifier. ● To re-display the code, switch the power off (POWER STANDBY button), and then switch power back on again. **2. For F-61:** ● If "F-61" is displayed, the power will automatically be switched off and the standby indicator will light up. ● "F-61" will be displayed for 3 seconds, and then the clock will be displayed. ● To re-display the code, switch the power on. "F-61" will be re-displayed, and then after 3 seconds the clock will be displayed and the power will automatically switch off.	 CD Changer (SL-EH600) Sound processor (SH-EH600) Cassette deck (RS-EH600) Tuner/Amplifier (SA-EH600) U70CD U70DECK

Display contents

Display code	Problem or condition	Correction procedure
U-70 CD **U-70 DECK** (displayed automatically)	A bus-line communications error has occurred as a result of the flat cables being inserted incorrectly, thus preventing the system from operating. 1.If "U-70" is displayed on the tuner/amplifier, the tape deck or CD Changer cannot be operated by remote control.	 1. To check for correct insertion of the flat cables. ①Insert each connector until you hear a click. ②Insert the flat cables at the back of the unit in the order indicated. Make sure the white side of the cable is on your right side.  2. Breakage of flat cable. (Check and replace as necessary.) 3. If the problem is not corrected by items (1.) and (2.) above, this indicates a faulty IC. **SA-EH600:** IC901 (M38199MF105K) **SL-EH600:** IC401 (LC66538A4K17) **RS-EH600:** IC701 (M37471M4679F) Check these IC's and replace as necessary.
F-61	When the power switch is switched on, it automatically switches back off, making it impossible to switch power on.	● Faulty Tuner/Amplifier (SA-EH600) output IC (IC601). (When a DC voltage is applied to the speaker terminals.)

Schematic Diagram

Page
A TUNER CIRCUIT 20, 21
B OPERATION CIRCUIT .... 22 – 24
C DOLBY PRO LOGIC CIRCUIT .... 25 – 27
D IN/OUT TERMINAL CIRCUIT 28
E MAIN CIRCUIT .... 28 – 33

Page
F POWER SUPPLY CIRCUIT 33, 34
G SPEAKER TERMINAL CIRCUIT 34
H POWER TRANSFORMER (A) CIRCUIT 34
I POWER TRANSFORMER (B) CIRCUIT 34

- **This schematic diagram may be modified at any time with the development of new technology.**

Notes:

- **S901** : Power "STANDBY ⏻ /ON" switch (POWER STANDBY ⏻ /ON)
- **S902** : Clock/timer switch (CLOCK/TIMER)
- **S903** : Record timer switch (⏲REC)
- **S904** : Play timer switch (⏲PLAY)
- **S905** : Tuning mode select switch (TUNING MODE)
- **S906** : Set switch (SET)
- **S907** : FM mode select switch (FM AUTO/MONO)
- **S908** : Source input select switch (INPUT SELECTOR)
- **S909** : Tuning down switch (TUNING ∨)
- **S910** : Tuning up switch (TUNING ∧)
- **S911** : Tuner/band select switch (TUNER/BAND)
- **S912** : Super woofer switch (S.WOOFER)
- **S913** : RDS display mode select switch (PS–DISP MODE) ⎫ For (EG) and (EP) areas
- **S914** : RDS display mode select switch (DISP MODE–PTY) ⎭
- **VR901** : Volume control (VOLUME)

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  No mark: FM ( ) : AM

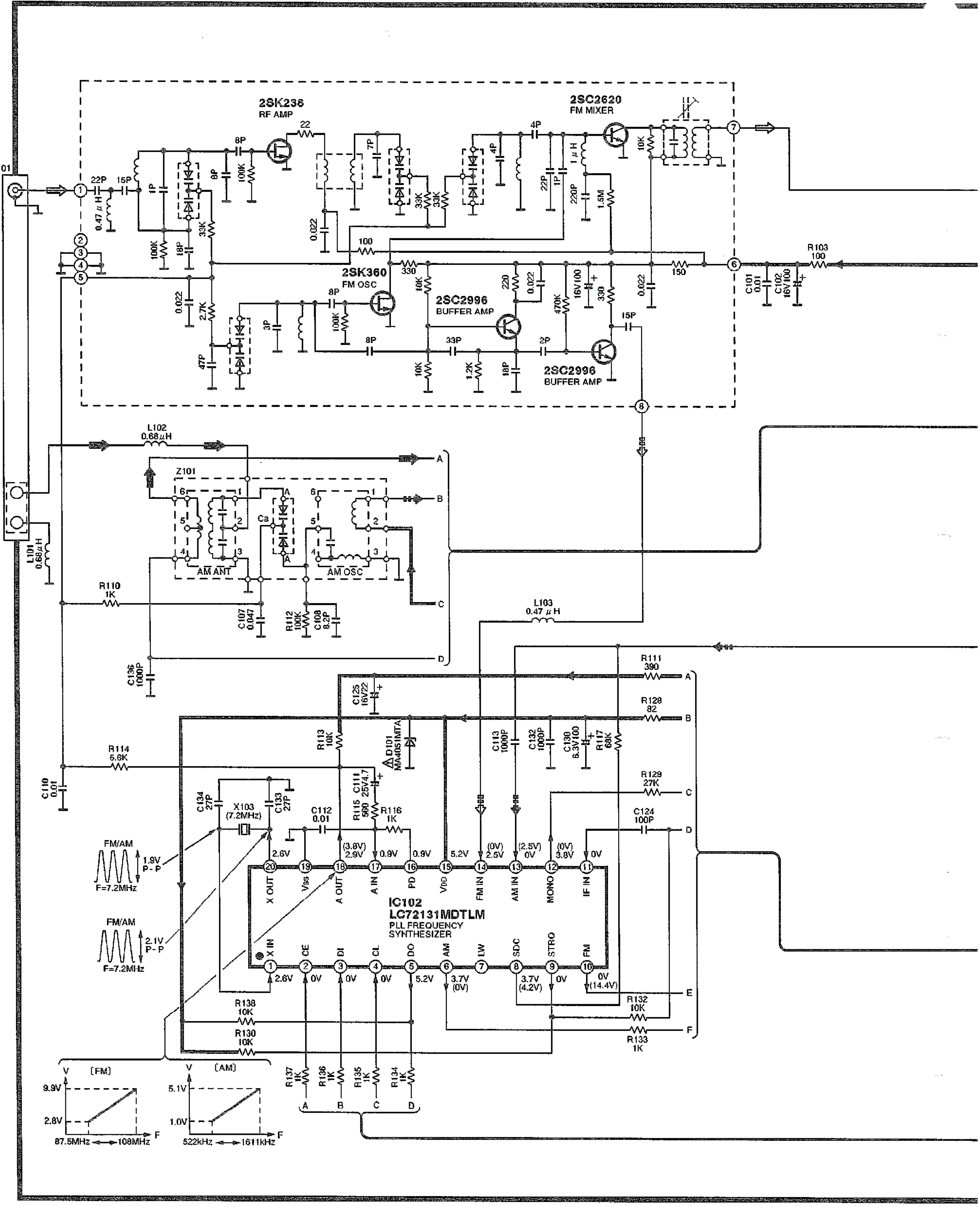
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

- **Voltage and signal line**

─➤─	: Positive voltage line	▪▪➤▪▪	: Negative voltage line
➡	: AM signal Line	▨⇨	: Surround Speaker Drive signal line
▪▪▪➡	: AM OSC signal line	⇛	: Center Speaker Drive signal line
⇨	: FM signal line		
□□□⇨	: FM OSC signal line		

A TUNER CIRCUIT (P.C.Board:on page 35)



JK101
FM ANT (75 Ω)
2SK236 RF AMP
2SC2620 FM MIXER
2SK360 FM OSC
2SC2996 BUFFER AMP
2SC2996 BUFFER AMP
22P
15P
1P
0.47 μH
100K
18P
33K
8P
100K
22
7P
0.022
100
4P
22P
1P
220P
1 μH
1.5M
10K
330
150
220
0.022
470K
16V100
330
0.022
15P
2.7K
47P
3P
100K
8P
33P
2P
10K
1.2K
18P
R103 100
C101 0.01
C102 16V100
AM ANT EXT
LOOP
L102 0.68μH
L101 0.68μH
Z101
AM ANT
AM OSC
Ca
R110 1K
C107 0.047
R112 100K
C108 8.2P
C136 1000P
L103 0.47 μH
R111 390
R128 82
C125 16V22
R113 10K
D101 MA4051MTA
C113 1000P
C132 1000P
C130 6.3V100
R117 68K
R114 5.6K
C110 0.01
C111 25V4.7
R115 560
R116 1K
R129 27K
C124 100P
C134 27P
X103 (7.2MHz)
C133 27P
C112 0.01
FM/AM 1.9V P-P F=7.2MHz
FM/AM 2.1V P-P F=7.2MHz
IC102 LC72131MDTLM PLL FREQUENCY SYNTHESIZER
X OUT
Vss
A OUT
A IN
PD
VDD
FM IN
AM IN
MONO
IF IN
X IN
CE
DI
CL
DO
AM
LW
SDC
STRO
FM
2.6V
(3.8V) 2.9V
0.9V
0.9V
5.2V
(0V) 2.5V
(2.5V) 0V
(0V) 3.8V
0V
2.6V
0V
0V
0V
5.2V
3.7V (0V)
3.7V (4.2V)
0V
0V (14.4V)
R138 10K
R130 10K
R132 10K
R133 1K
R137 1K
R136 1K
R135 1K
R134 1K
A B C D E F
V (FM) 9.9V 2.8V F 87.5MHz 108MHz
V (AM) 5.1V 1.0V F 522kHz 1611kHz

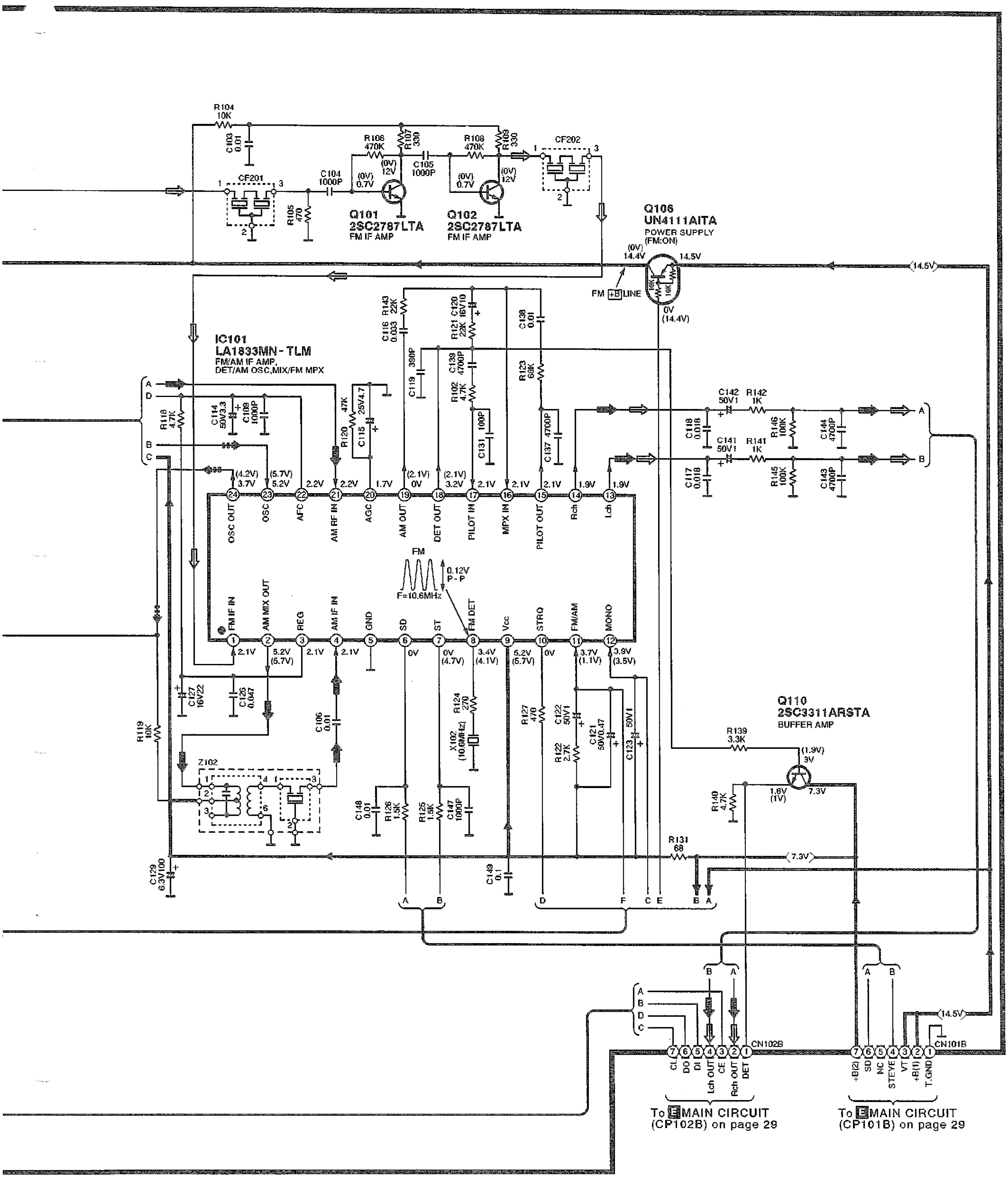
▬▶ : AM signal Line

▪▪▪▶ : AM OSC signal line

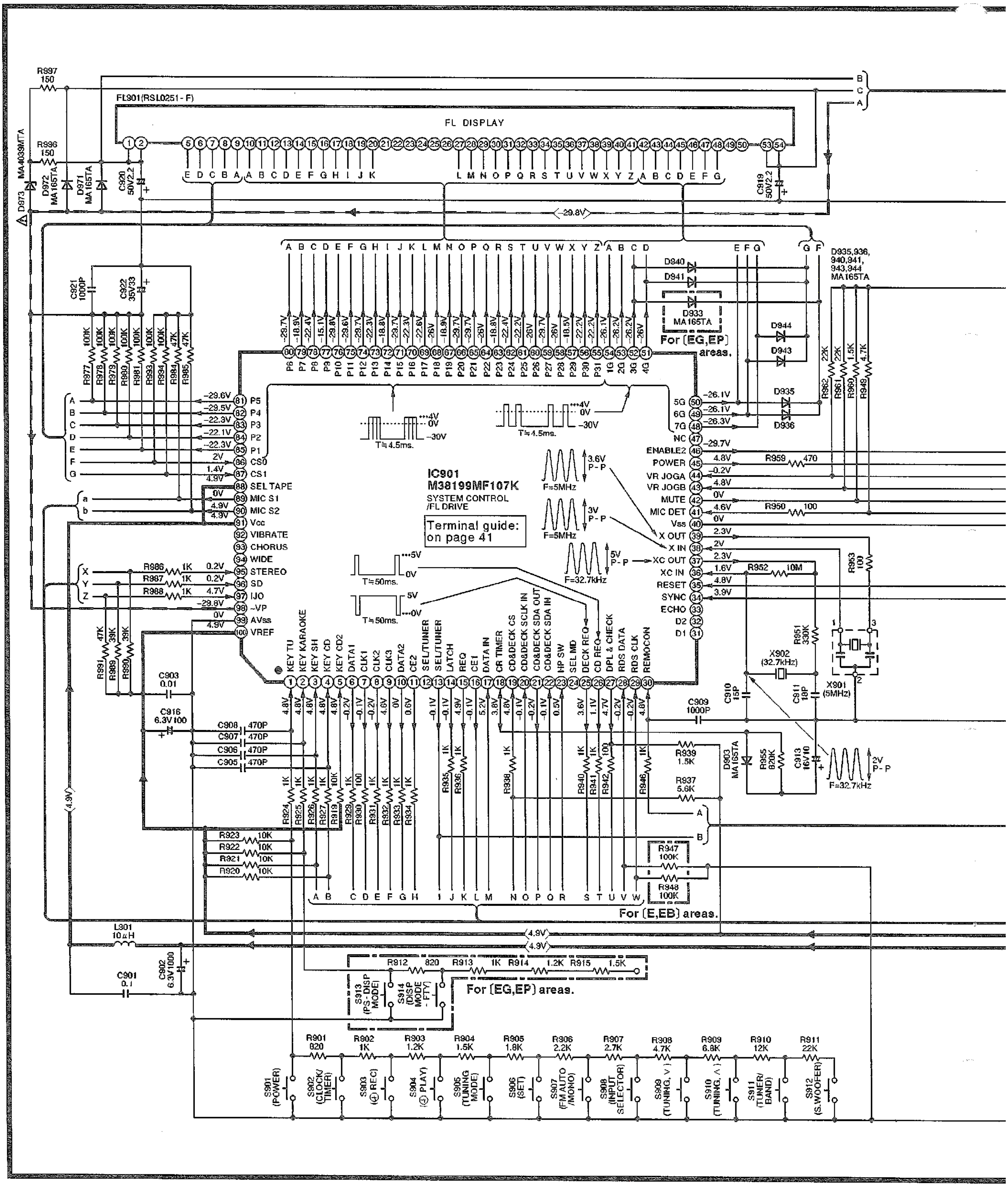
⇨ : FM signal line

□□□▷ : FM OSC signal line

▬▶ : Positive voltage line


R104 10K
C103 0.01
CF201
R105 470
C104 1000P
R106 470K
R107 330
C105 1000P
Q101 2SC2787LTA FM IF AMP
R108 470K
R109 330
Q102 2SC2787LTA FM IF AMP
CF202
Q106 UN4111AITA POWER SUPPLY (FM:ON)
FM +B LINE
14.4V
14.5V
(14.5V)
(14.4V)
IC101 LA1833MN-TLM FM/AM IF AMP, DET/AM OSC,MIX/FM MPX
R118 4.7K
C114 50V3.3
C109 1000P
R120 47K
C115 25V4.7
C116 0.033
R143 22K
C119 390P
R121 22K
C120 16V10
C139 4700P
R102 4.7K
C131 100P
C138 0.01
R123 68K
C137 4700P
C142 50V1
R142 1K
C141 50V1
R141 1K
C118 0.018
C117 0.018
R146 100K
R145 100K
C144 4700P
C143 4700P
OSC OUT
OSC
AFC
AM RF IN
AGC
AM OUT
DET OUT
PILOT IN
MPX IN
PILOT OUT
Rch
Lch
FM
0.12V P-P
F=10.6MHz
FM IF IN
AM MIX OUT
REG
AM IF IN
GND
SD
ST
FM DET
Vcc
STRO
FM/AM
MONO
C127 16V22
C126 0.047
R119 10K
Z102
C106 0.01
X102 (10.6MHz)
R124 270
R127 470
C122 50V1
C121 50V0.47
R122 2.7K
C123 50V1
C148 0.01
R126 1.5K
R125 1.5K
C147 1000P
C149 0.1
C129 6.3V100
Q110 2SC3311ARSTA BUFFER AMP
R139 3.3K
R140 4.7K
R131 68
(7.3V)
CN102B
CL
DO
DI
Lch OUT
CE
Rch OUT
DET
CN101B
+B(2)
SD
NC
STEVE
VT
+B(1)
T.GND
To E MAIN CIRCUIT (CP102B) on page 29
To E MAIN CIRCUIT (CP101B) on page 29

B OPERATION CIRCUIT (P.C.Board:on page 35)

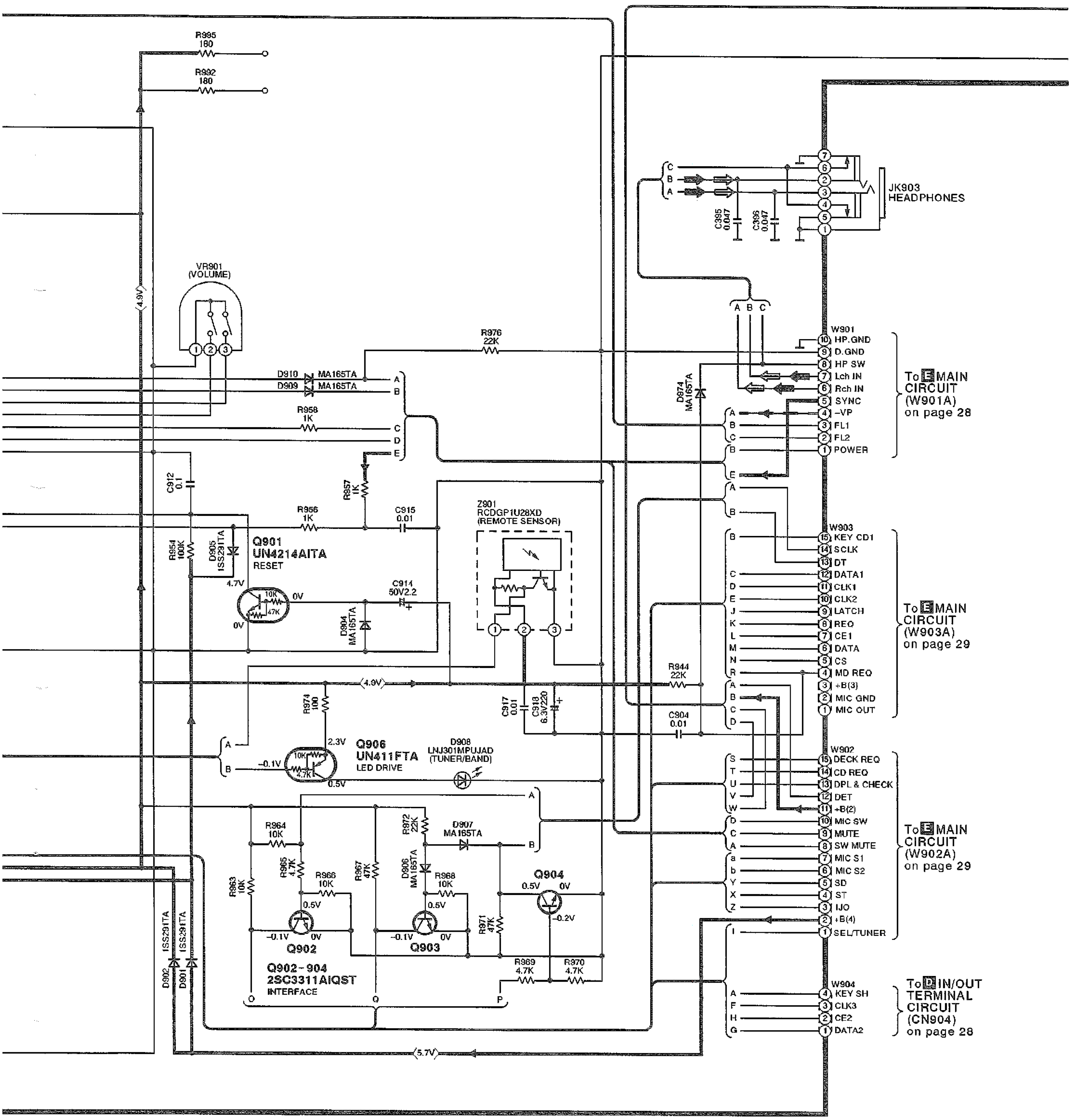

R997
150
FL901(RSL0251-F)
FL DISPLAY
R996
150
D973 MA4039MTA
D972 MA165TA
D971 MA165TA
C920 50V2.2
C919 50V2.2
-29.8V
C921 1000P
C922 35V33
R977 100K
R978 100K
R979 100K
R980 100K
R981 100K
R993 100K
R994 100K
R984 47K
R985 47K
D935,936, 940,941, 943,944 MA165TA
D940
D941
D933 MA165TA
For (EG,EP) areas.
D944
D943
D935
D936
R962 22K
R961 22K
R960 1.5K
R949 4.7K
IC901
M38199MF107K
SYSTEM CONTROL /FL DRIVE
Terminal guide: on page 41
T≒4.5ms.
T≒50ms.
F=5MHz
3.6V P-P
3V P-P
5V P-P
F=32.7kHz
P5
P4
P3
P2
P1
CS0
CS1
SEL TAPE
MIC S1
MIC S2
Vcc
VIBRATE
CHORUS
WIDE
STEREO
SD
IJO
-VP
AVss
VREF
5G
6G
7G
NC
ENABLE2
POWER
VR JOGA
VR JOGB
MUTE
MIC DET
Vss
X OUT
X IN
XC OUT
XC IN
RESET
SYNC
ECHO
D2
D1
R959 470
R950 100
R952 10M
R953 100
R951 330K
X902 (32.7kHz)
X901 (5MHz)
C910 15P
C911 18P
C909 1000P
R986 1K
R987 1K
R988 1K
R991 47K
R989 39K
R990 39K
C903 0.01
C916 6.3V100
C908 470P
C907 470P
C906 470P
C905 470P
KEY TU
KEY KARAOKE
KEY SH
KEY CD
KEY CD2
DATA1
CLK1
CLK2
CLK3
DATA2
CE2
SEL/TUNER
SEL/TUNER
LATCH
REQ
CE1
DATA IN
CR TIMER
CD&DECK CS
CD&DECK SCLK IN
CD&DECK SDA OUT
CD&DECK SDA IN
HP SW
SEL MD
DECK REQ
CD REQ
DPL & CHECK
RDS DATA
RDS CLK
REMOCON
R939 1.5K
R937 5.6K
D903 MA165TA
R955 820K
C913 16V10
2V P-P
F=32.7kHz
R923 10K
R922 10K
R921 10K
R920 10K
R947 100K
R948 100K
For (E,EB) areas.
L301 10μH
C901 0.1
C902 6.3V1000
4.9V
R912 820
R913 1K
R914 1.2K
R915 1.5K
S913 (PS-DISP MODE)
S914 (DISP MODE - FTY)
For (EG,EP) areas.
R901 820
R902 1K
R903 1.2K
R904 1.5K
R905 1.8K
R906 2.2K
R907 2.7K
R908 4.7K
R909 6.8K
R910 12K
R911 22K
S901 (POWER)
S902 (CLOCK/TIMER)
S903 (● REC)
S904 (▷ PLAY)
S905 (TUNING MODE)
S906 (SET)
S907 (FM AUTO /MONO)
S908 (INPUT SELECTOR)
S909 (TUNING ∨)
S910 (TUNING ∧)
S911 (TUNER/BAND)
S912 (S.WOOFER)

: Positive voltage line

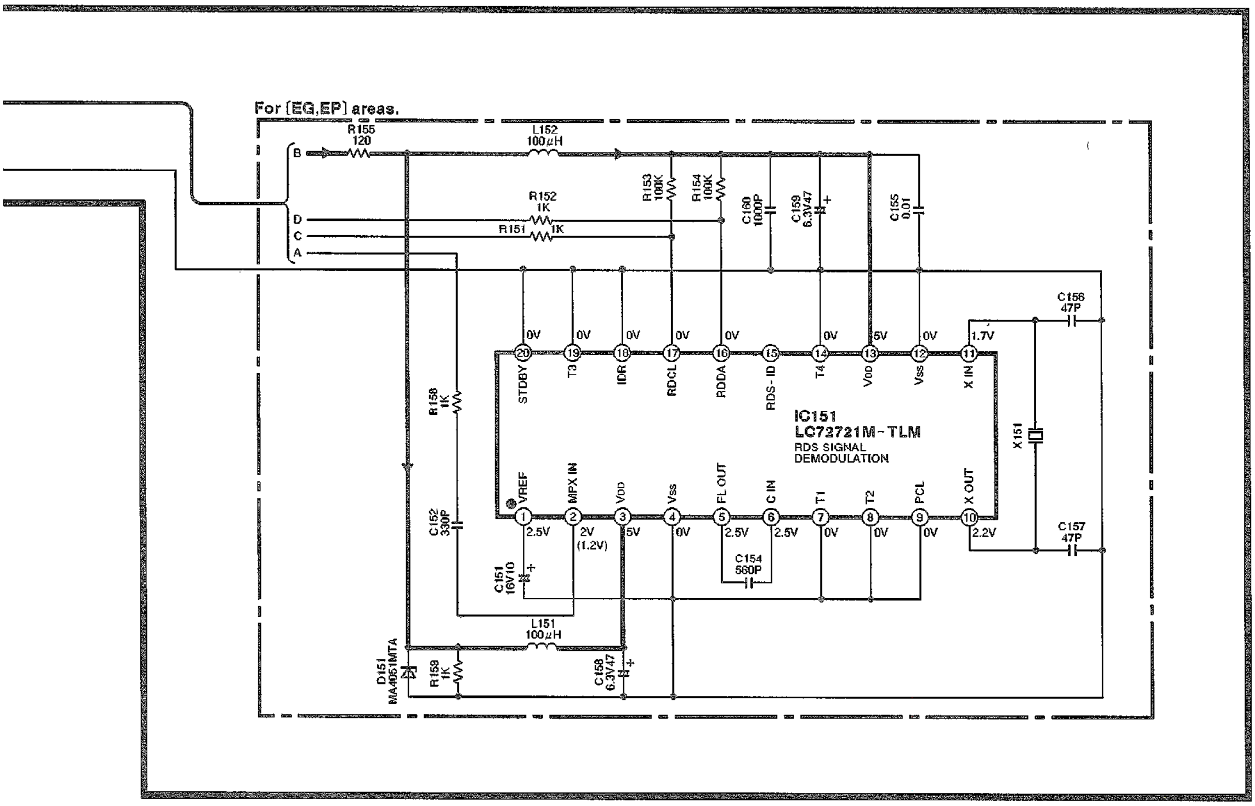
: Negative voltage line

: AM signal Line

: FM signal line


R995
180
R992
180
VR901
(VOLUME)
4.9V
D910
MA165TA
D909
MA165TA
R976
22K
R958
1K
A
B
C
D
E
C912
0.1
R957
1K
R956
1K
C915
0.01
R954
100K
D905
1SS291TA
Q901
UN4214AITA
RESET
4.7V
10K
47K
0V
C914
50V2.2
D904
MA165TA
Z901
RCDGP1U28XD
(REMOTE SENSOR)
R974
100
2.3V
Q906
UN411FTA
LED DRIVE
-0.1V
0.5V
D908
LNJ301MPUJAD
(TUNER/BAND)
C917
0.01
C918
6.3V220
R944
22K
C904
0.01
D974
MA165TA
R964
10K
R963
10K
R965
4.7K
R966
10K
0.5V
Q902
R967
47K
R972
22K
D907
MA165TA
D906
MA165TA
R968
10K
Q903
R971
47K
Q904
-0.2V
R969
4.7K
R970
4.7K
Q902-904
2SC3311AIQST
INTERFACE
O
Q
P
D902
1SS291TA
D901
1SS291TA
5.7V
C395
0.047
C396
0.047
JK903
HEADPHONES
W901
10 HP.GND
9 D.GND
8 HP SW
7 Lch IN
6 Rch IN
5 SYNC
4 -VP
3 FL1
2 FL2
1 POWER
To E MAIN CIRCUIT (W901A) on page 28
W903
15 KEY CD1
14 SCLK
13 DT
12 DATA1
11 CLK1
10 CLK2
9 LATCH
8 REQ
7 CE1
6 DATA
5 CS
4 MD REQ
3 +B(3)
2 MIC GND
1 MIC OUT
To E MAIN CIRCUIT (W903A) on page 29
W902
15 DECK REQ
14 CD REQ
13 DPL & CHECK
12 DET
11 +B(2)
10 MIC SW
9 MUTE
8 SW MUTE
7 MIC S1
6 MIC S2
5 SD
4 ST
3 IJO
2 +B(4)
1 SEL/TUNER
To E MAIN CIRCUIT (W902A) on page 29
W904
4 KEY SH
3 CLK3
2 CE2
1 DATA2
To D IN/OUT TERMINAL CIRCUIT (CN904) on page 28

B OPERATION CIRCUIT (P.C.Board:on page 35)


For [EG,EP] areas.
R155
120
L152
100μH
B
D
C
A
R152
1K
R151 1K
R153
100K
R154
100K
C160
1000P
C159
6.3V47
C155
0.01
C156
47P
0V
0V
0V
0V
0V
0V
5V
0V
1.7V
20
19
18
17
16
15
14
13
12
11
STDBY
T3
IDR
RDCL
RDDA
RDS-ID
T4
VDD
Vss
X IN
R158
1K
IC151
LC72721M-TLM
RDS SIGNAL
DEMODULATION
X151
VREF
MPX IN
VDD
Vss
FL OUT
C IN
T1
T2
PCL
X OUT
1
2
3
4
5
6
7
8
9
10
2.5V
2V
(1.2V)
5V
0V
2.5V
2.5V
0V
0V
0V
2.2V
C157
47P
C152
330P
C151
16V10
C154
560P
L151
100μH
D151
MA4051MTA
R158
1K
C158
6.3V47

➡ : Positive voltage line

■■➡■■ : Negative voltage line

➡ : AM signal Line

▨➡ : Surround Speaker Drive signal line

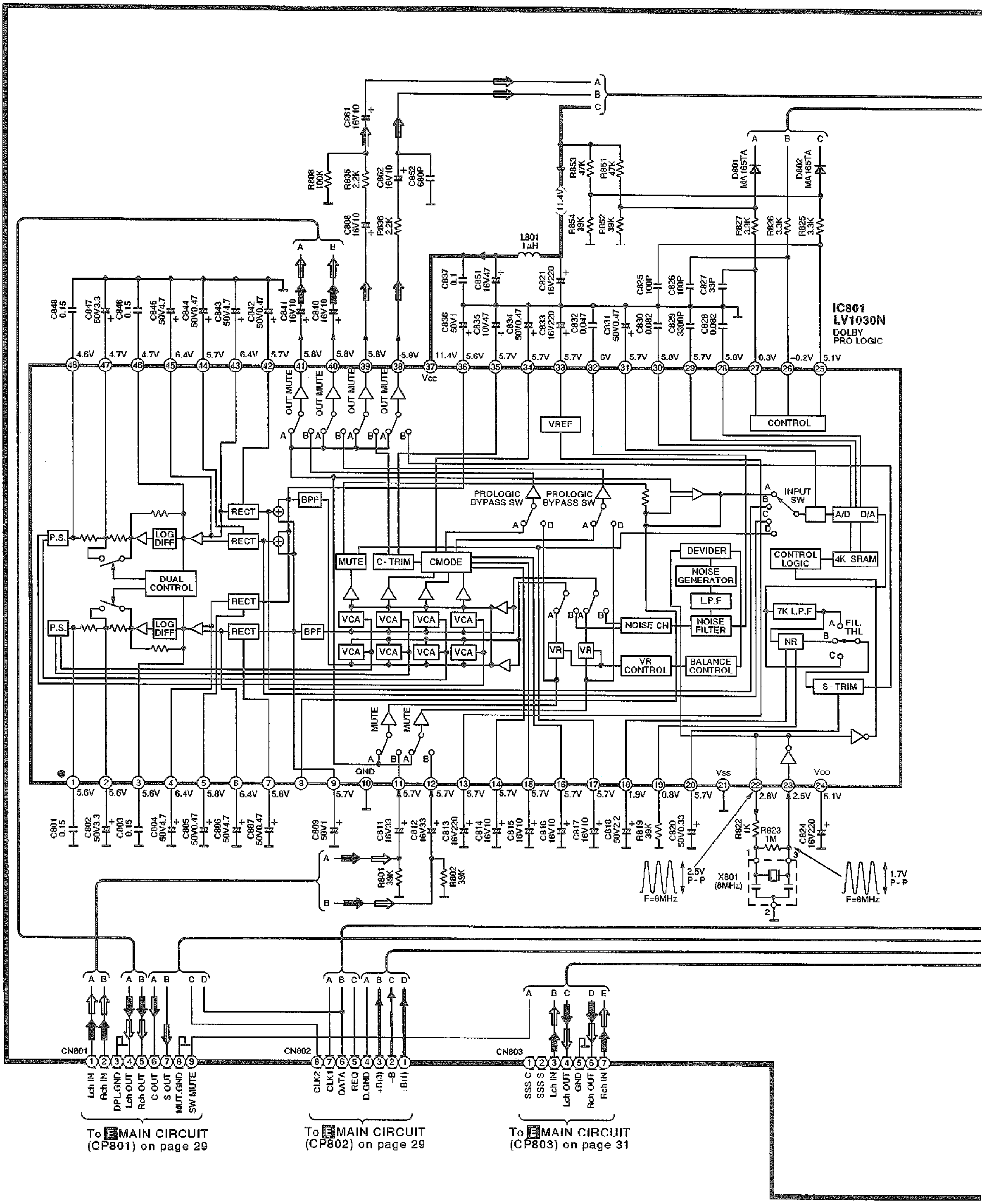
■■■➡ : AM OSC signal line

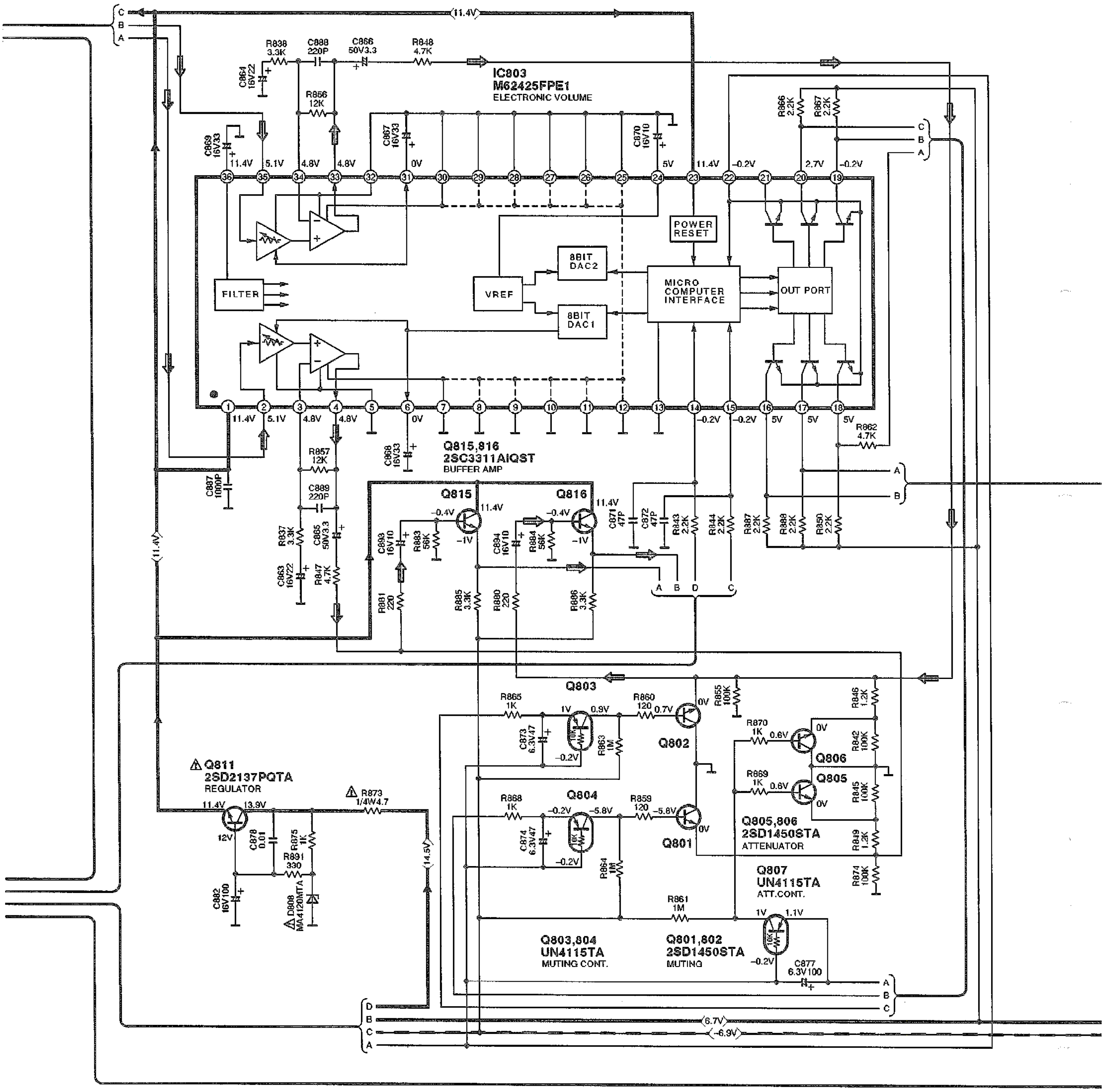
⇨ : Center Speaker Drive signal line

⇨ : FM signal line

□□□▷ : FM OSC signal line

C DOLBY PROLOGIC CIRCUIT (P.C.Board:on page 37)


IC801
LV1030N
DOLBY
PRO LOGIC
OUT MUTE
Vcc
VREF
CONTROL
PROLOGIC BYPASS SW
INPUT SW
A/D
D/A
CONTROL LOGIC
4K SRAM
DEVIDER
NOISE GENERATOR
L.P.F
NOISE FILTER
NOISE CH
VR CONTROL
BALANCE CONTROL
7K L.P.F
FIL.
THL
NR
S-TRIM
P.S.
LOG DIFF
RECT
BPF
DUAL CONTROL
MUTE
C-TRIM
CMODE
VCA
VR
GND
Vss
VDD
L801 1μH
D801 MA165TA
D802 MA165TA
X801 (8MHz)
2.5V P-P
F=8MHz
1.7V P-P
F=8MHz
CN801
Lch IN
Rch IN
DPL.GND
Lch OUT
Rch OUT
C OUT
S OUT
MUT.GND
SW MUTE
CN802
CLK2
CLK1
DATA
REQ
D.GND
+B(3)
-B
+B(1)
CN803
SSS C
SSS S
Lch IN
Lch OUT
GND
Rch OUT
Rch IN
To E MAIN CIRCUIT (CP801) on page 29
To E MAIN CIRCUIT (CP802) on page 29
To E MAIN CIRCUIT (CP803) on page 31


IC803
M62425FPE1
ELECTRONIC VOLUME
POWER RESET
8BIT DAC2
8BIT DAC1
VREF
FILTER
MICRO COMPUTER INTERFACE
OUT PORT
R838 3.3K
C888 220P
C866 50V3.3
R848 4.7K
C864 16V22
R856 12K
C869 16V33
C867 16V33
C870 16V10
R866 2.2K
R867 2.2K
R862 4.7K
C887 1000P
R857 12K
C889 220P
R837 3.3K
C865 50V3.3
C863 16V22
R847 4.7K
C868 16V33
Q815,816
2SC3311AIQST
BUFFER AMP
Q815
Q816
C893 16V10
R883 56K
C894 16V10
R884 56K
R881 220
R885 3.3K
R880 220
R886 3.3K
C871 47P
C872 47P
R843 2.2K
R844 2.2K
R887 2.2K
R888 2.2K
R850 2.2K
Q803
R865 1K
C873 6.3V47
R863 1M
R860 120
Q802
R855 100K
R846 1.2K
R870 1K
Q806
R842 100K
R869 1K
Q805
R845 100K
Q804
R868 1K
C874 6.3V47
R864 1M
R859 120
Q801
Q805,806
2SD1450STA
ATTENUATOR
R849 1.3K
R874 100K
Q807
UN4115TA
ATT.CONT.
R861 1M
C877 6.3V100
Q803,804
UN4115TA
MUTING CONT.
Q801,802
2SD1450STA
MUTING
Q811
2SD2137PQTA
REGULATOR
R873 1/4W4.7
C878 0.01
R875 1K
R891 330
C882 16V100
D808 MA4120MTA
11.4V
13.9V
12V
14.5V
6.7V
-6.9V
5.1V
4.8V
0V
5V
-0.2V
2.7V
-0.4V
-1V
1V
0.9V
0.7V
0.6V
-5.8V
1.1V
A
B
C
D

➡ : AM signal Line

⇨ : FM signal line

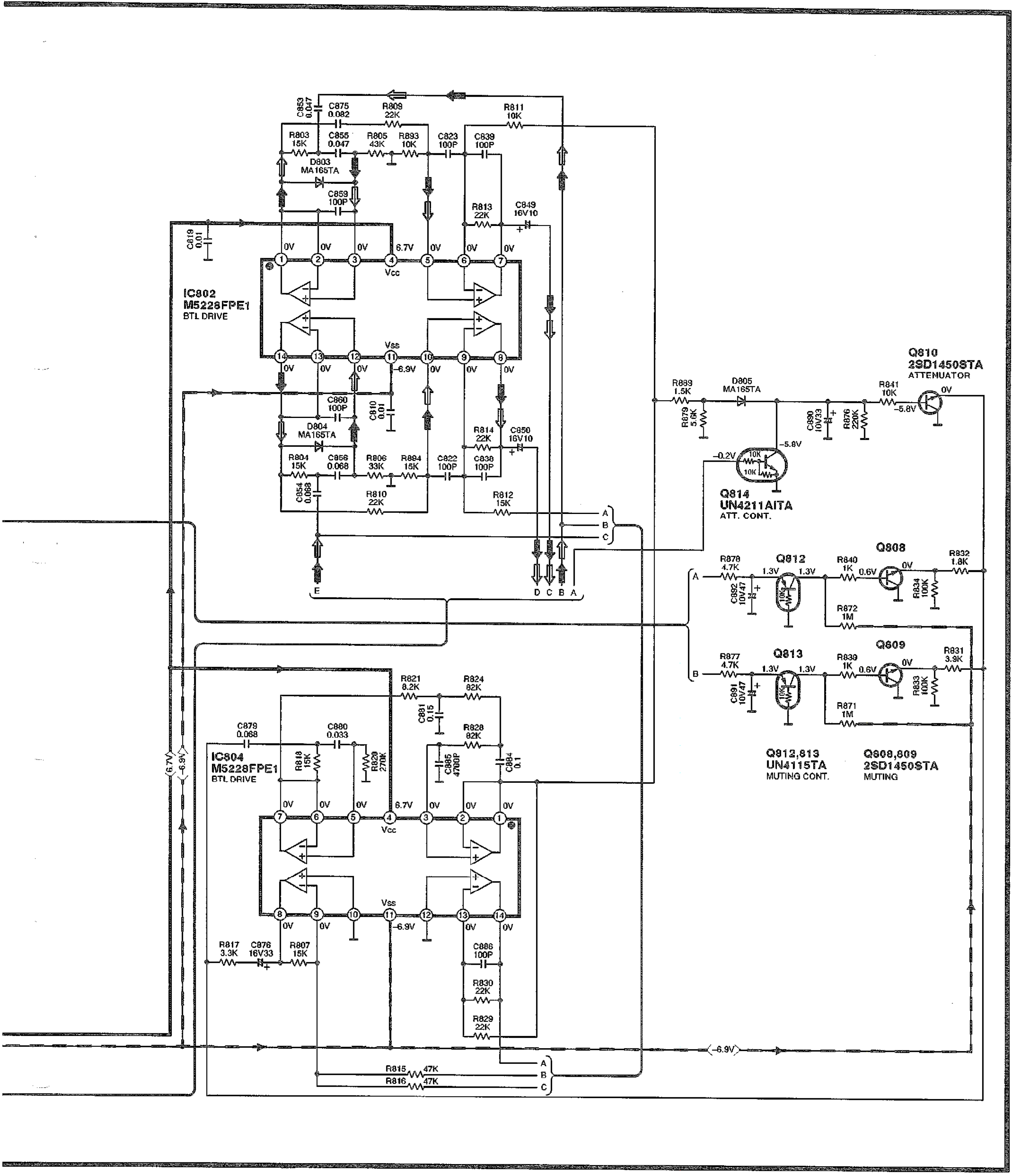
➡ : Surround Speaker Drive signal line

⇨ : Center Speaker Drive signal line

➡ : Positive voltage line

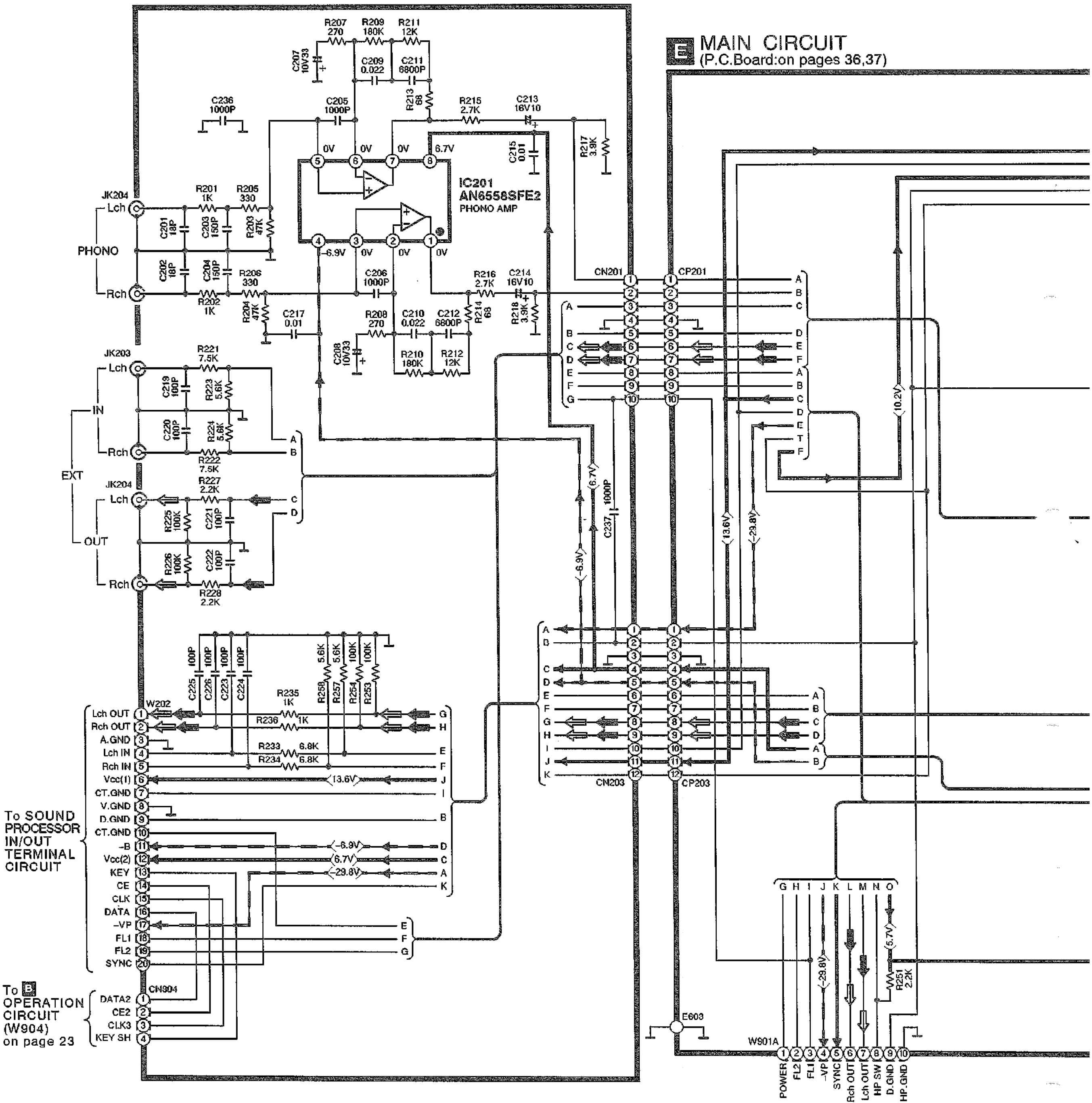
➡ : Negative voltage line

C DOLBY PROLOGIC CIRCUIT (P.C.Board:on page 37)


IC802
M5228FPE1
BTL DRIVE
IC804
M5228FPE1
BTL DRIVE
C853 0.047
C875 0.082
R809 22K
R811 10K
R803 15K
C855 0.047
R805 43K
R893 10K
C823 100P
C839 100P
D803 MA165TA
C859 100P
R813 22K
C849 16V10
C819 0.01
0V
6.7V
Vcc
Vss
-6.9V
C860 100P
C810 0.01
D804 MA165TA
R814 22K
C850 16V10
R804 15K
C856 0.068
R806 33K
R894 15K
C822 100P
C838 100P
C854 0.068
R810 22K
R812 15K
A
B
C
D
E
R889 1.5K
D805 MA165TA
R879 5.6K
C890 10V33
R876 220K
R841 10K
-5.8V
Q810
2SD1450STA
ATTENUATOR
-0.2V
10K
Q814
UN4211AITA
ATT. CONT.
R878 4.7K
Q812
1.3V
R840 1K
0.6V
Q808
R832 1.8K
C892 10V47
R834 100K
R872 1M
R877 4.7K
Q813
R839 1K
Q809
R831 3.9K
C891 10V47
R833 100K
R871 1M
Q812,813
UN4115TA
MUTING CONT.
Q808,809
2SD1450STA
MUTING
R821 8.2K
R824 82K
C881 0.15
C879 0.068
C880 0.033
R828 82K
R818 15K
R820 270K
C885 4700P
C884 0.1
6.7V
-6.9V
R817 3.3K
C876 16V33
R807 15K
C886 100P
R830 22K
R829 22K
R815 47K
R816 47K

D IN/OUT TERMINAL CIRCUIT (P.C. Board : on page 37)

E MAIN CIRCUIT (P.C.Board:on pages 36,37)


R207 270
R209 180K
R211 12K
C207 10V33
C209 0.022
C211 6800P
C236 1000P
C205 1000P
R213 68
R215 2.7K
C213 16V10
C215 0.01
R217 3.9K
IC201
AN6558SFE2
PHONO AMP
JK204
Lch
Rch
PHONO
R201 1K
R205 330
C201 18P
C203 150P
R203 47K
C202 18P
C204 150P
R206 330
R202 1K
R204 47K
C217 0.01
C206 1000P
R208 270
C208 10V33
C210 0.022
C212 6800P
R210 180K
R212 12K
R216 2.7K
C214 16V10
R214 68
R218 3.9K
0V
6.7V
-6.9V
JK203
IN
EXT
OUT
R221 7.5K
C219 100P
R223 5.6K
C220 100P
R224 5.6K
R222 7.5K
R227 2.2K
R225 100K
C221 100P
R226 100K
C222 100P
R228 2.2K
C237 1000P
(6.7V)
(-6.9V)
(13.6V)
(-29.8V)
(10.2V)
CN201
CP201
CN203
CP203
C225 100P
C226 100P
C223 100P
C224 100P
R258 5.6K
R257 5.6K
R254 100K
R253 100K
R235 1K
R236 1K
R233 6.8K
R234 6.8K
W202
Lch OUT
Rch OUT
A.GND
Lch IN
Rch IN
Vcc(1)
CT.GND
V.GND
D.GND
CT.GND
-B
Vcc(2)
KEY
CE
CLK
DATA
-VP
FL1
FL2
SYNC
To SOUND PROCESSOR IN/OUT TERMINAL CIRCUIT
To B OPERATION CIRCUIT (W904) on page 23
CN904
DATA2
CE2
CLK3
KEY SH
E603
W901A
(5.7V)
R251 2.2K
POWER
FL2
FL1
-VP
SYNC
Rch OUT
Lch OUT
HP SW
D.GND
HP.GND
To B OPERATION CIRCUIT(W901) on page 23

▬▶ : Positive voltage line

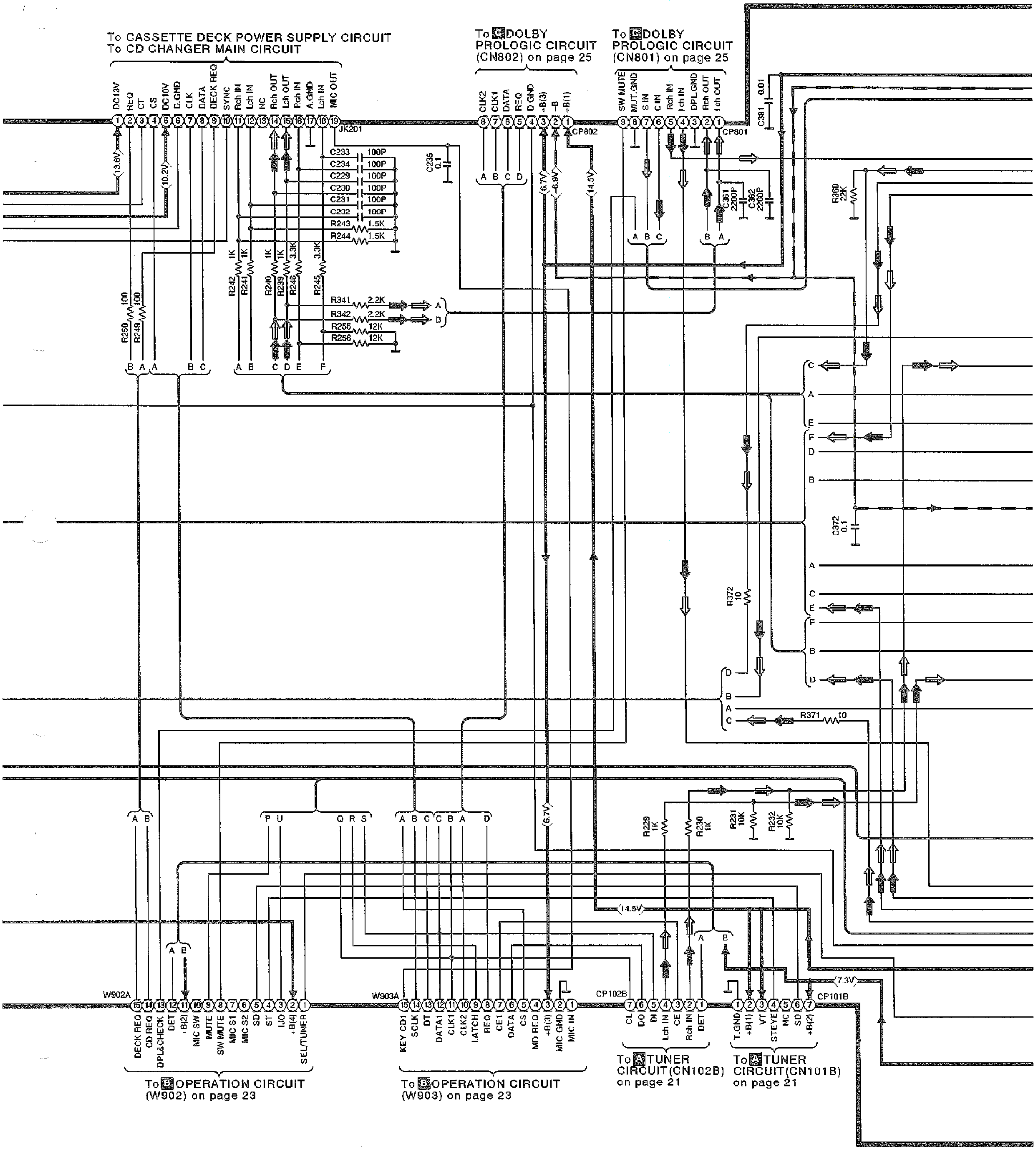
▪▪▶▪▪ : Negative voltage line

➡ : AM signal Line

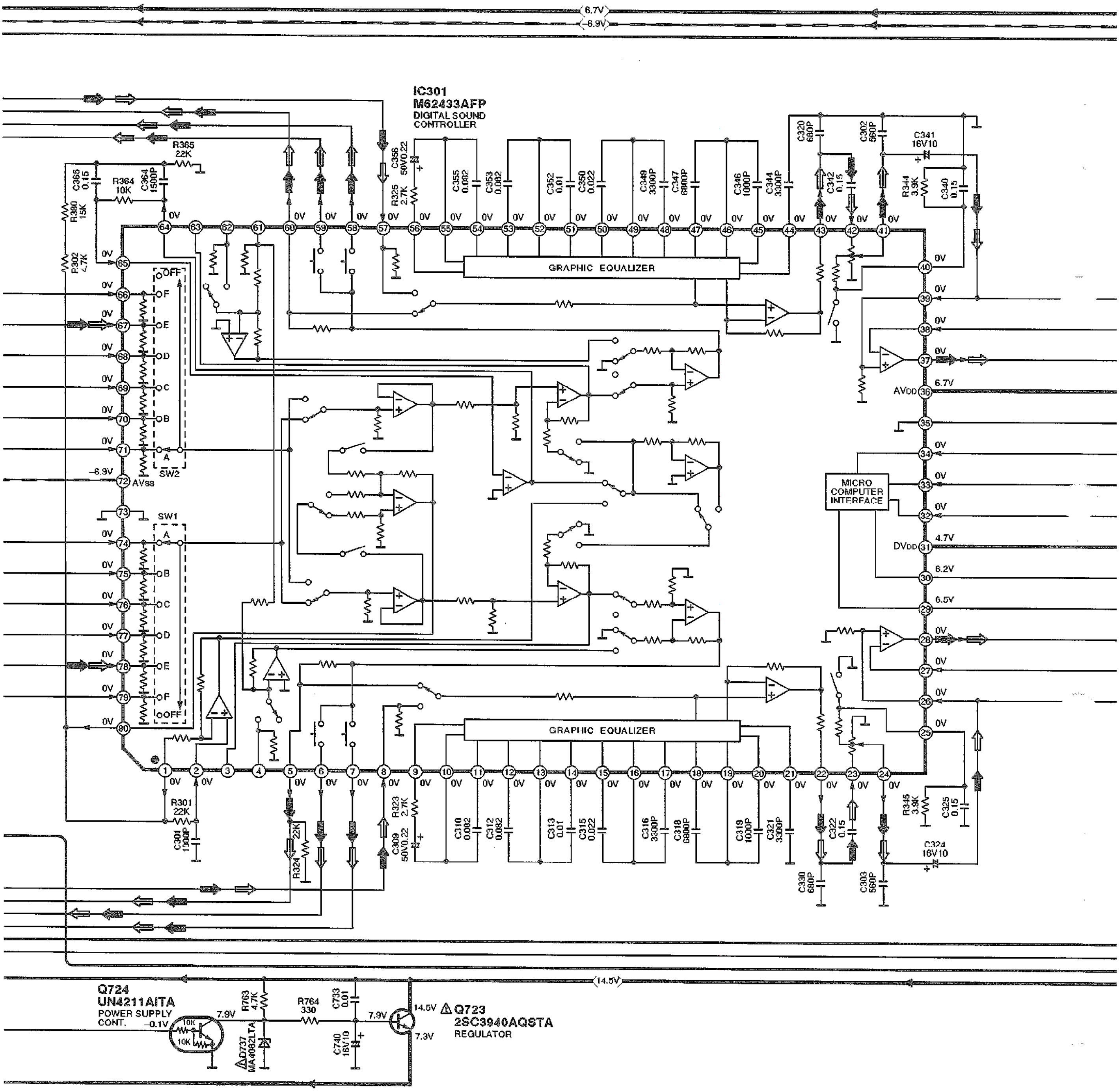
⇨ : FM signal line

⇨ : Surround Speaker Drive signal line

⇨ : Center Speaker Drive signal line


To CASSETTE DECK POWER SUPPLY CIRCUIT
To CD CHANGER MAIN CIRCUIT
DC13V
REQ
CT
CS
DC10V
D.GND
CLK
DATA
DECK REQ
SYNC
Rch IN
Lch IN
NC
Rch OUT
Lch OUT
Rch IN
A.GND
Lch IN
MIC OUT
JK201
(13.6V)
(10.2V)
C233 100P
C234 100P
C229 100P
C230 100P
C231 100P
C232 100P
R243 1.5K
R244 1.5K
C235 0.1
R242 1K
R241 1K
R240 1K
R239 1K
R246 3.3K
R245 3.3K
R341 2.2K
R342 2.2K
R255 12K
R256 12K
R250 100
R249 100
To C DOLBY PROLOGIC CIRCUIT (CN802) on page 25
CLK2
CLK1
DATA
REQ
D.GND
+B(3)
-B
+B(1)
CP802
(6.7V)
(-6.9V)
(14.5V)
To C DOLBY PROLOGIC CIRCUIT (CN801) on page 25
SW MUTE
MUT.GND
S IN
C IN
Rch IN
Lch IN
DPL.GND
Rch OUT
Lch OUT
CP801
C381 0.01
C361 2200P
C362 2200P
R360 22K
C372 0.1
R372 10
R371 10
R229 1K
R230 1K
R231 10K
R232 10K
(14.5V)
(7.3V)
(6.7V)
W902A
DECK REQ
CD REQ
DPL&CHECK
DET
+B(2)
MIC SW
MUTE
SW MUTE
MIC S1
MIC S2
SD
ST
IJO
+B(4)
SEL/TUNER
W903A
KEY CD1
SCLK
DT
DATA1
CLK1
CLK2
LATCH
REQ
CE1
DATA
CS
MD REQ
+B(3)
MIC GND
MIC IN
CP102B
CL
DO
DI
Lch IN
CE
Rch IN
DET
T.GND
+B(1)
VT
STEYE
NC
SD
+B(2)
CP101B
To B OPERATION CIRCUIT (W902) on page 23
To B OPERATION CIRCUIT (W903) on page 23
To A TUNER CIRCUIT(CN102B) on page 21
To A TUNER CIRCUIT(CN101B) on page 21

E MAIN CIRCUIT (P.C.Board:on pages 36,37)


6.7V
-6.9V
IC301
M62433AFP
DIGITAL SOUND CONTROLLER
R365 22K
C365 0.15
R364 10K
C364 1500P
R390 15K
R302 4.7K
C356 50V0.22
R325 2.7K
C355 0.082
C353 0.082
C352 0.01
C350 0.022
C349 3300P
C347 6800P
C346 1000P
C344 3300P
C320 680P
C302 560P
C341 16V10
C342 0.15
R344 3.9K
C340 0.15
GRAPHIC EQUALIZER
SW2
SW1
OFF
A
B
C
D
E
F
AVss
AVDD
DVDD
MICRO COMPUTER INTERFACE
0V
6.7V
4.7V
6.2V
6.5V
-6.9V
R301 22K
C301 1000P
R324 22K
R323 2.7K
C309 50V0.22
C310 0.082
C312 0.082
C313 0.01
C315 0.022
C316 3300P
C318 6800P
C319 1000P
C321 3300P
C322 0.15
C330 680P
C303 560P
R345 3.9K
C325 0.15
C324 16V10
14.5V
Q724
UN4211AITA
POWER SUPPLY CONT.
-0.1V
10K
10K
7.9V
R763 4.7K
D737 MA4082LTA
R764 330
C733 0.01
C740 16V10
7.9V
14.5V
Q723
2SC3940AQSTA
REGULATOR
7.3V

➡ : Positive voltage line

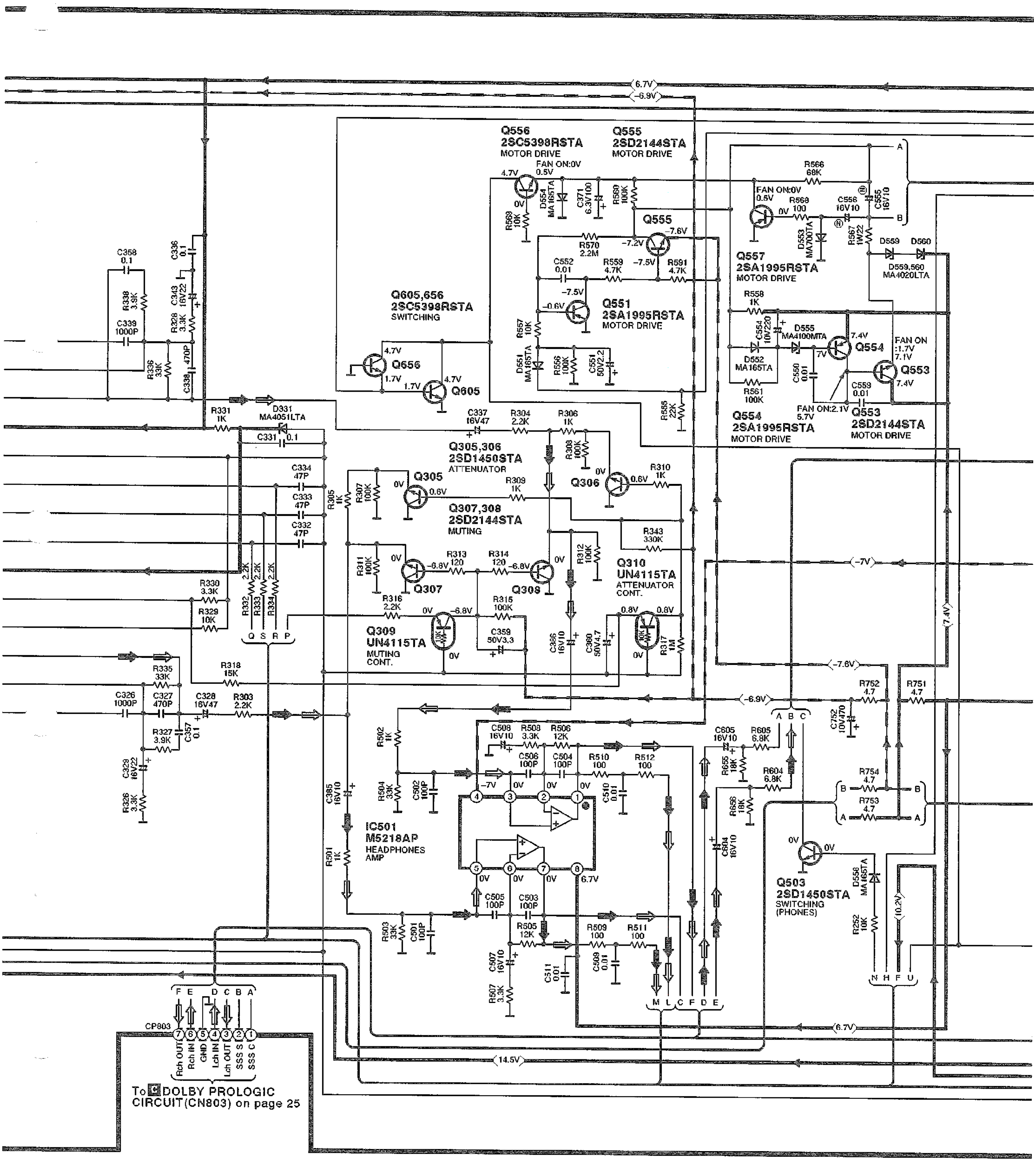
➡ : AM signal Line

➡ : Surround Speaker Drive signal line

➡ : Negative voltage line

⇨ : FM signal line

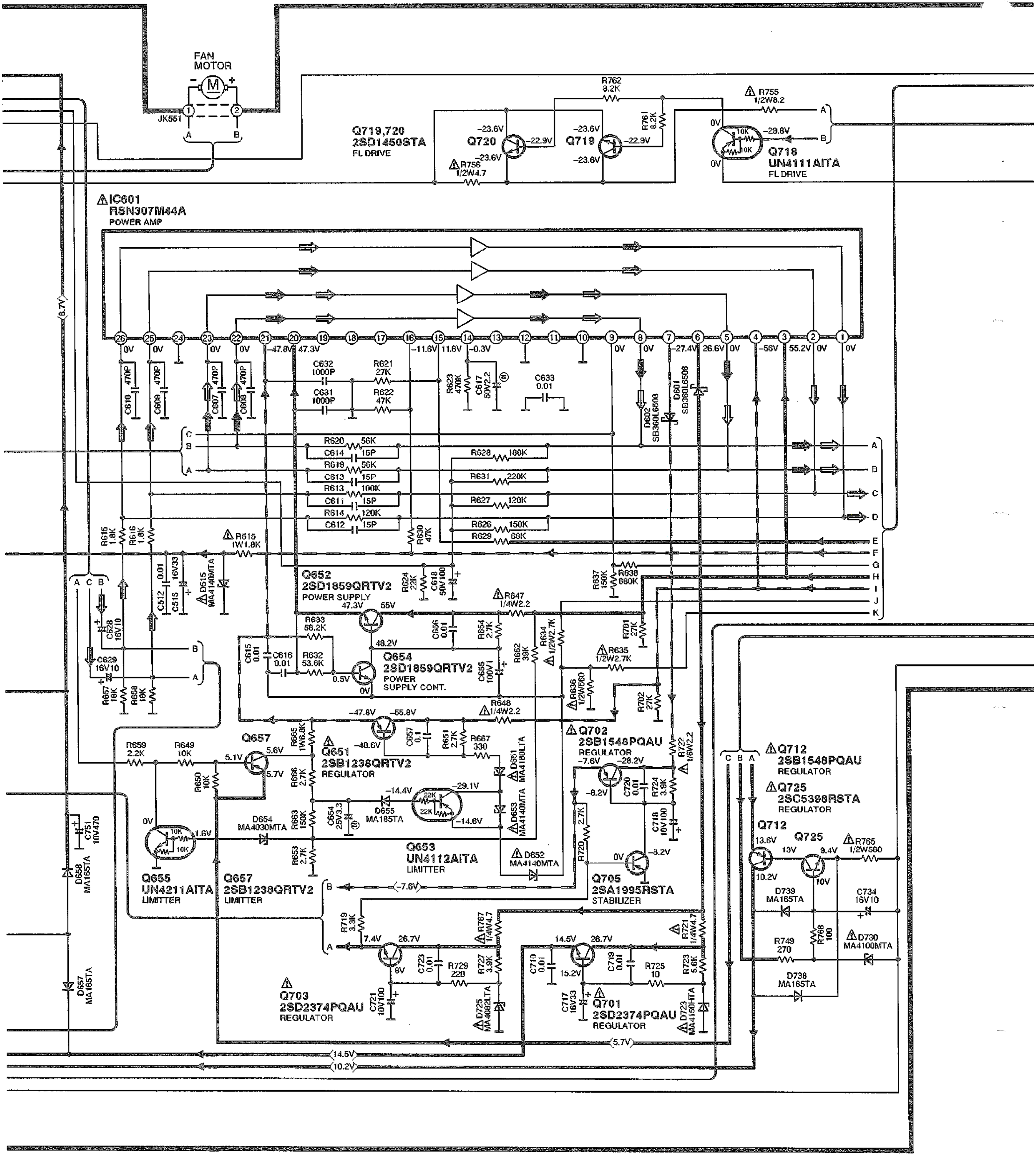
➡ : Center Speaker Drive signal line



Q556
2SC5398RSTA
MOTOR DRIVE
Q555
2SD2144STA
MOTOR DRIVE
FAN ON:0V
4.7V
0.5V
D554 MA165TA
C371 6.3V100
R560 100K
R569 10K
Q555
-7.6V
R570 2.2M
-7.2V
C552 0.01
R559 4.7K
-7.5V
R591 4.7K
Q551
2SA1995RSTA
MOTOR DRIVE
-0.6V
R557 10K
D551 MA165TA
R556 100K
C551 50V2.2
R555 22K
Q605,656
2SC5398RSTA
SWITCHING
Q656
Q605
4.7V
1.7V
R566 68K
FAN ON:0V
0.5V
R568 100
C556 16V10
C555 16V10
D553 MA700TA
R567 1W22
D559
D560
D559,560 MA4020LTA
Q557
2SA1995RSTA
MOTOR DRIVE
R558 1K
C554 10V220
D555 MA4100MTA
7.4V
Q554
FAN ON :1.7V 7.1V
D552 MA165TA
C550 0.01
Q553
7.4V
C559 0.01
R561 100K
FAN ON:2.1V 5.7V
Q554
2SA1995RSTA
MOTOR DRIVE
Q553
2SD2144STA
MOTOR DRIVE
6.7V
-6.9V
A
B
C358 0.1
C336 0.1
R338 3.9K
C343 16V22
C339 1000P
R328 3.3K
R336 33K
C338 470P
R331 1K
D331 MA4051LTA
C331 0.1
C337 16V47
R304 2.2K
R306 1K
Q305,306
2SD1450STA
ATTENUATOR
R308 100K
R310 1K
Q306
0.6V
Q305
R309 1K
0V
0.6V
C334 47P
C333 47P
C332 47P
R305 1K
R307 100K
Q307,308
2SD2144STA
MUTING
R343 330K
R311 100K
R313 120
R314 120
-6.8V
R312 100K
Q310
UN4115TA
ATTENUATOR CONT.
Q307
Q308
R330 3.3K
R329 10K
R332 2.2K
R333 2.2K
R334 2.2K
R316 2.2K
R315 100K
-6.8V
Q S R P
Q309
UN4115TA
MUTING CONT.
C359 50V3.3
C386 16V10
C360 50V4.7
0.8V
R317 1M
-7V
7.4V
-7.6V
R335 33K
R318 15K
C326 1000P
C327 470P
C328 16V47
R303 2.2K
R327 3.9K
C357 0.1
C329 16V22
R326 3.3K
-6.9V
R752 4.7
R751 4.7
A B C
C752 10V470
R502 1K
C508 16V10
R508 3.3K
R506 12K
C605 16V10
R605 6.8K
C506 100P
C504 100P
R510 100
R512 100
R655 18K
R604 6.8K
R754 4.7
R753 4.7
R504 33K
C502 100P
-7V
C510 0.01
R656 18K
C385 16V10
IC501
M5218AP
HEADPHONES AMP
C604 16V10
0V
Q503
2SD1450STA
SWITCHING (PHONES)
D558 MA165TA
R252 10K
(10.2V)
R501 1K
6.7V
C505 100P
C503 100P
R503 33K
C501 100P
R505 12K
R509 100
R511 100
C507 16V10
C509 0.01
C511 0.01
R507 3.3K
N H F U
M L C F D E
F E D C B A
CP803
7 6 5 4 3 2 1
Rch OUT
Rch IN
GND
Lch IN
Lch OUT
SSS S
SSS C
6.7V
14.5V

To ◻ DOLBY PROLOGIC CIRCUIT(CN803) on page 25

E MAIN CIRCUIT (P.C.Board:on pages 36, 37)


FAN MOTOR
M
JK551
A
B
R762 8.2K
R761 8.2K
Q719,720
2SD1450STA
FL DRIVE
Q720
Q719
-23.6V
-22.9V
R756 1/2W4.7
R755 1/2W8.2
Q718
UN4111AITA
FL DRIVE
-29.8V
0V
10K
IC601
RSN307M44A
POWER AMP
0V
-47.8V
47.3V
-11.6V
11.6V
-0.3V
-27.4V
26.6V
-56V
55.2V
C610 470P
C609 470P
C607 470P
C608 470P
C632 1000P
C631 1000P
R621 27K
R622 47K
R623 470K
C617 50V2.2
C633 0.01
D602 SB360L6508
D601 SB360L6508
R620 56K
C614 15P
R619 56K
C613 15P
R613 100K
C611 15P
R614 120K
C612 15P
R628 180K
R631 220K
R627 120K
R626 150K
R629 68K
R630 47K
A
B
C
D
E
F
G
H
I
J
K
R615 1.8K
R616 1.8K
R515 1W1.8K
C512 0.01
C515 16V33
D515 MA4140MTA
Q652
2SD1859QRTV2
POWER SUPPLY
47.3V
55V
R624 22K
C618 50V100
R637 150K
R638 680K
R647 1/4W2.2
C628 16V10
C629 16V10
R657 18K
R658 18K
R633 56.2K
C615 0.01
C616 0.01
R632 53.6K
48.2V
Q654
2SD1859QRTV2
POWER SUPPLY CONT.
0.5V
C656 0.01
R654 2.7K
R662 39K
C655 100V1
R634 1/2W2.7K
R701 27K
R635 1/2W2.7K
R636 1/2W560
R702 27K
R648 1/4W2.2
-47.8V
-55.8V
Q657
R665 1W6.8K
Q651
2SB1238QRTV2
REGULATOR
-48.6V
C657 0.1
R651 2.7K
R667 330
D651 MA4180LTA
Q702
2SB1548PQAU
REGULATOR
-7.6V
-28.2V
R722 1/4W2.2
R659 2.2K
R649 10K
5.1V
5.6V
5.7V
R650 10K
R666 2.7K
-14.4V
-29.1V
22K
D655 MA185TA
-14.6V
D653 MA4140MTA
-8.2V
C720 0.01
R724 3.9K
C718 10V100
0V
1.6V
D654 MA4030MTA
R663 150K
C654 25V3.3
Q653
UN4112AITA
LIMITTER
D652 MA4140MTA
R720 2.7K
Q705
2SA1995RSTA
STABILIZER
C751 10V470
D658 MA165TA
Q655
UN4211AITA
LIMITTER
Q657
2SB1238QRTV2
LIMITTER
R653 2.7K
(-7.6V)
R719 3.3K
R767 1/4W4.7
R721 1/4W4.7
7.4V
26.7V
14.5V
C723 0.01
R729 220
R727 3.9K
C710 0.01
C719 0.01
R725 10
R723 5.6K
8V
15.2V
D657 MA165TA
Q703
2SD2374PQAU
REGULATOR
C721 10V100
D725 MA4082LTA
C717 16V33
Q701
2SD2374PQAU
REGULATOR
D723 MA4150HTA
(5.7V)
(14.5V)
(10.2V)
(6.7V)
Q712
2SB1548PQAU
REGULATOR
Q725
2SC5398RSTA
REGULATOR
Q712
Q725
13.6V
13V
9.4V
10.2V
10V
R765 1/2W560
D739 MA165TA
C734 16V10
R749 270
R768 100
D730 MA4100MTA
D738 MA165TA

➡ : Positive voltage line

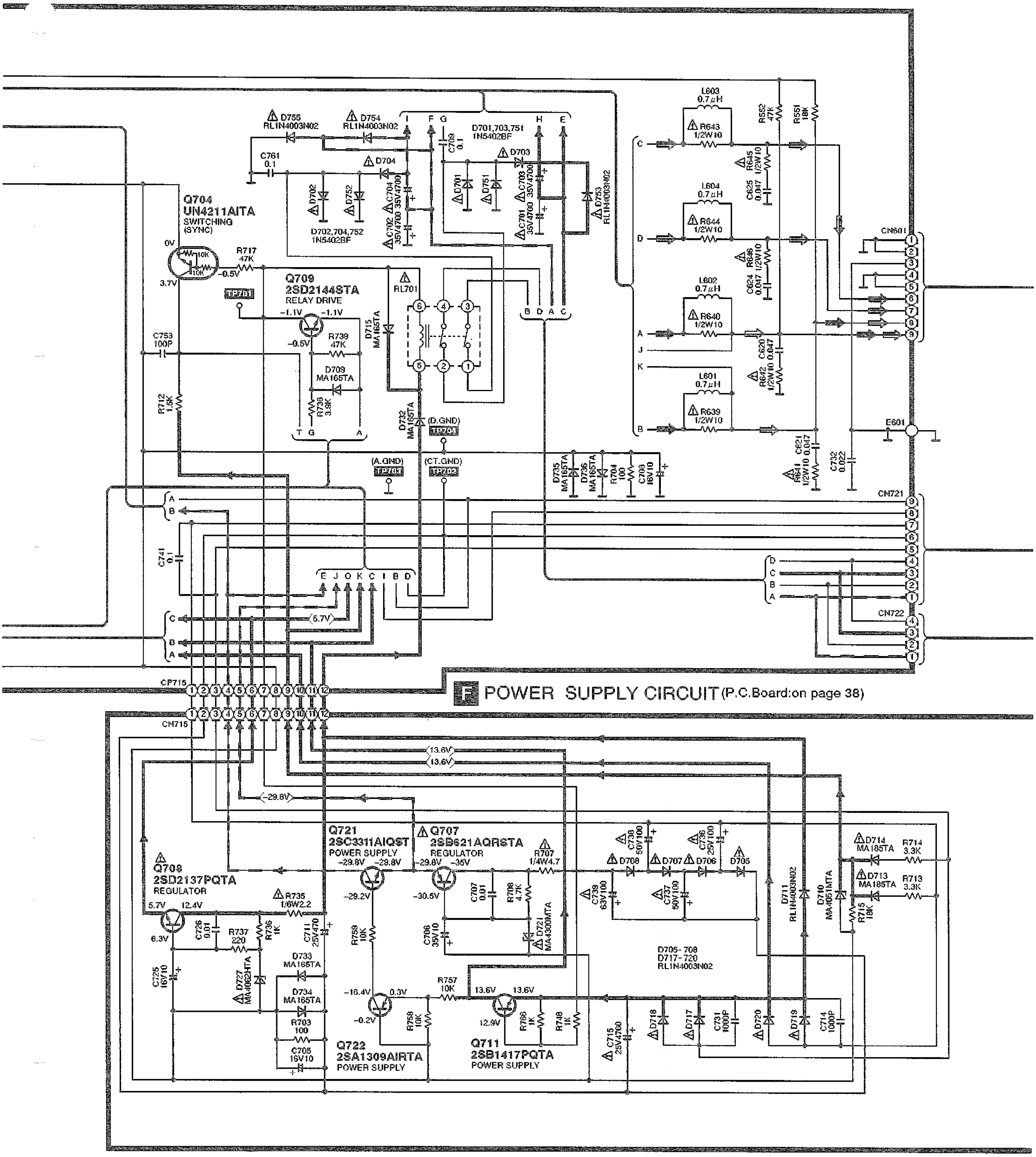
➡ : AM signal Line

➡ : Surround Speaker Drive signal line

➡ : Negative voltage line

⇨ : FM signal line

➡ : Center Speaker Drive signal line

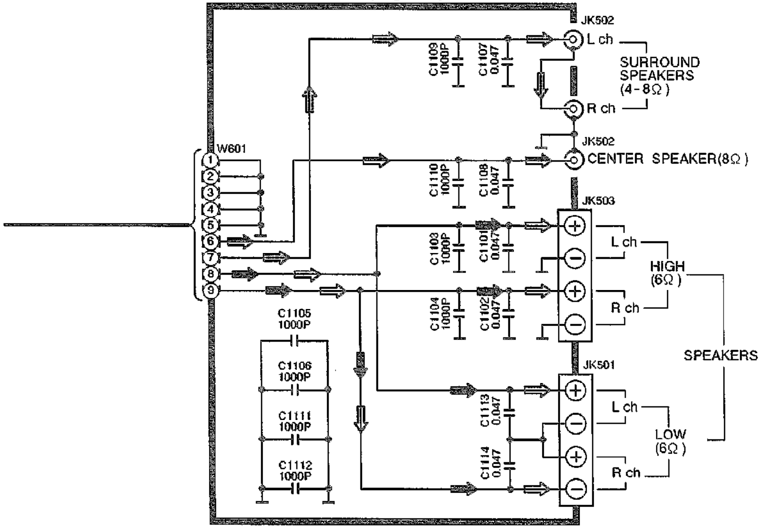

D755
RL1N4003N02
D754
RL1N4003N02
C761
0.1
D704
C709
0.1
D701,703,751
1N5402BF
D703
D702
D752
C704
35V4700
C702
35V4700
D702,704,752
1N5402BF
D701
D751
C703
35V4700
C701
35V4700
D753
RL1N4003N02
Q704
UN4211AITA
SWITCHING
(SYNC)
0V
R717
47K
10K
10K
-0.5V
3.7V
TP701
Q709
2SD2144STA
RELAY DRIVE
-1.1V
-1.1V
-0.5V
R739
47K
D709
MA165TA
R733
3.9K
C753
100P
R712
1.5K
RL701
D715
MA165TA
D732
MA165TA
(D.GND)
TP704
(A.GND)
TP703
(CT.GND)
TP702
D735
MA165TA
D736
MA165TA
R704
100
C708
16V10
L603
0.7μH
R643
1/2W10
R552
47K
R551
18K
R645
1/2W10
C625
0.047
L604
0.7μH
R644
1/2W10
R646
1/2W10
C624
0.047
L602
0.7μH
R640
1/2W10
R642
1/2W10
C620
0.047
L601
0.7μH
R639
1/2W10
R641
1/2W10
C621
0.047
C732
0.022
CN601
E601
CN721
CN722
C741
0.1
5.7V
CP715
CN715
13.6V
13.6V
-29.8V
Q721
2SC3311AIQST
POWER SUPPLY
-29.8V -29.8V
-29.2V
Q707
2SB621AQRSTA
REGULATOR
-29.8V -35V
-30.5V
R707
1/4W4.7
C707
0.01
R708
4.7K
D721
MA4300MTA
C706
35V10
R759
10K
Q708
2SD2137PQTA
REGULATOR
5.7V 12.4V
6.3V
R735
1/6W2.2
C726
0.01
R737
220
R736
1K
C711
25V470
C725
16V10
D727
MA4062HTA
D733
MA165TA
D734
MA165TA
R703
100
C705
16V10
-16.4V
0.3V
-0.2V
R757
10K
R758
10K
Q722
2SA1309AIRTA
POWER SUPPLY
13.6V 13.6V
12.9V
R766
1K
R748
1K
Q711
2SB1417PQTA
POWER SUPPLY
C738
50V100
C736
25V100
D708
D707
D706
D705
C739
63V100
C737
50V100
D705-708
D717-720
RL1N4003N02
C715
25V4700
D718
D717
C731
1000P
D720
D719
C714
1000P
D711
RL1N4003N02
D710
MA4051MTA
D714
MA185TA
R714
3.3K
D713
MA185TA
R713
3.3K
R715
18K

F POWER SUPPLY CIRCUIT (P.C.Board:on page 38)

→	: Positive voltage line	⇢	: Negative voltage line
➡	: AM signal Line	⇨	: FM signal line
▨	: Surround Speaker Drive signal line	⇛	: Center Speaker Drive signal line

G SPEAKER TERMINAL CIRCUIT

(P.C.Board:on page 38)

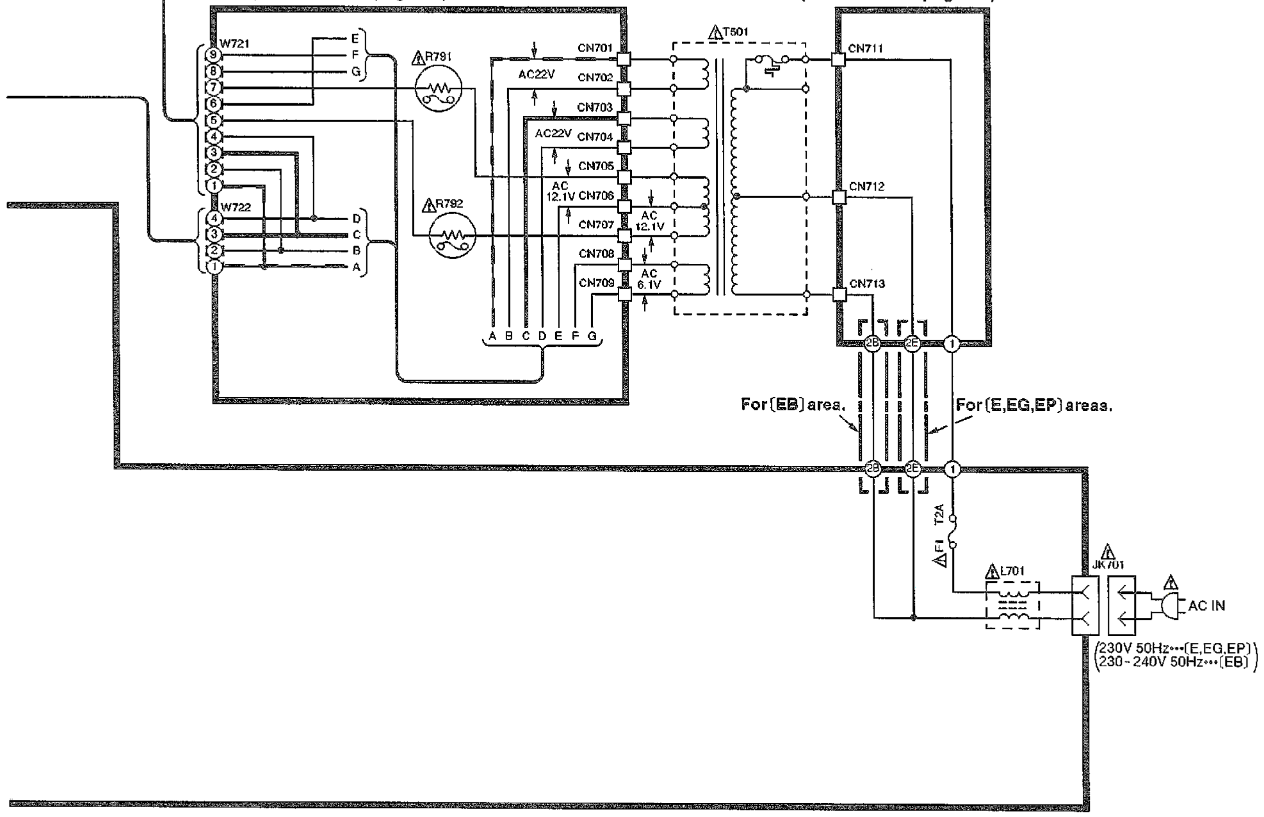

JK502
L ch
SURROUND SPEAKERS (4-8Ω)
R ch
JK502
CENTER SPEAKER(8Ω)
JK503
L ch
HIGH (6Ω)
R ch
SPEAKERS
JK501
L ch
LOW (6Ω)
R ch
W601
C1109 1000P
C1107 0.047
C1110 1000P
C1108 0.047
C1103 1000P
C1101 0.047
C1104 1000P
C1102 0.047
C1105 1000P
C1106 1000P
C1111 1000P
C1112 1000P
C1113 0.047
C1114 0.047
1
2
3
4
5
6
7
8
9

H POWER TRANSFORMER (A) CIRCUIT

(P.C.Board:on page 38)

I POWER TRANSFORMER (B) CIRCUIT

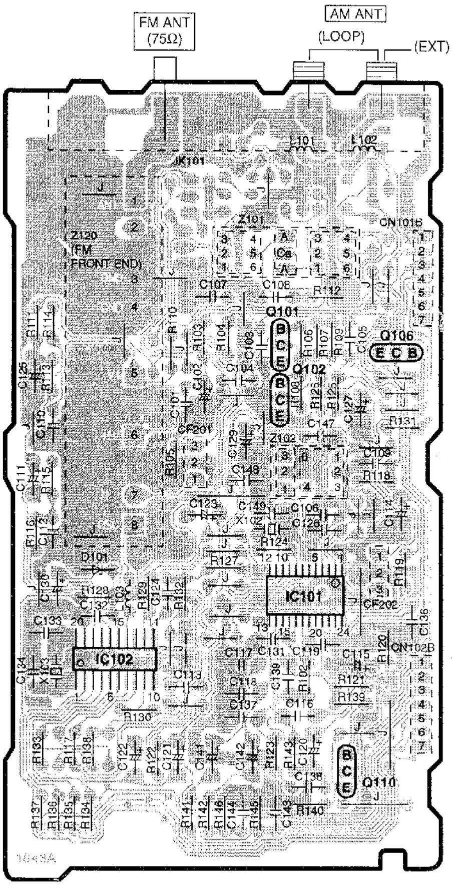
(P.C.Board:on page 38)


W721
W722
E
F
G
D
C
B
A
R791
R792
CN701
AC22V
CN702
CN703
AC22V
CN704
CN705
AC 12.1V
CN706
CN707
CN708
CN709
AC 12.1V
AC 6.1V
A B C D E F G
T501
CN711
CN712
CN713
2B
2E
1
For(EB) area.
For(E,EG,EP) areas.
F1 T2A
L701
JK701
AC IN
(230V 50Hz…(E,EG,EP)
230-240V 50Hz…(EB))

■ Printed Circuit Board Diagram

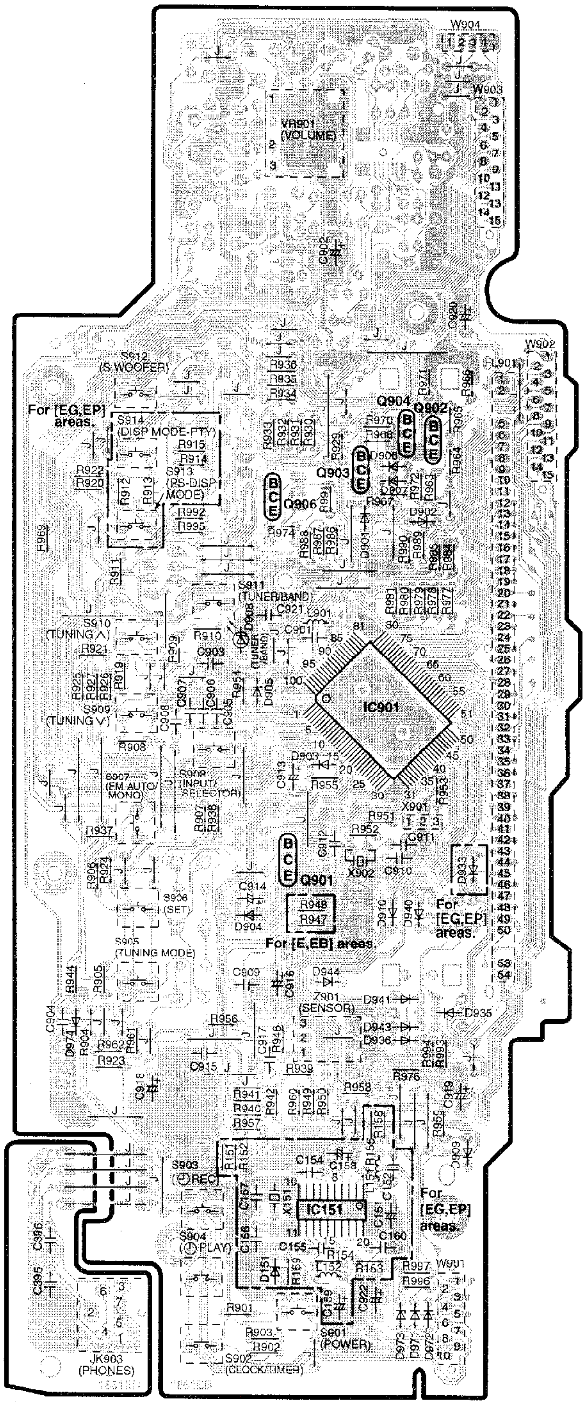
- This circuit board diagram may be modified at any time with the development of new technology.

A TUNER P.C.B.


FM ANT (75Ω)
AM ANT
(LOOP)
(EXT)
JK101
L101
L102
Z120 (FM FRONT END)
Z101
CN101B
Q101
Q102
Q106
Q110
CF201
CF202
Z102
X102
D101
IC101
IC102
CN102B
X101
L103

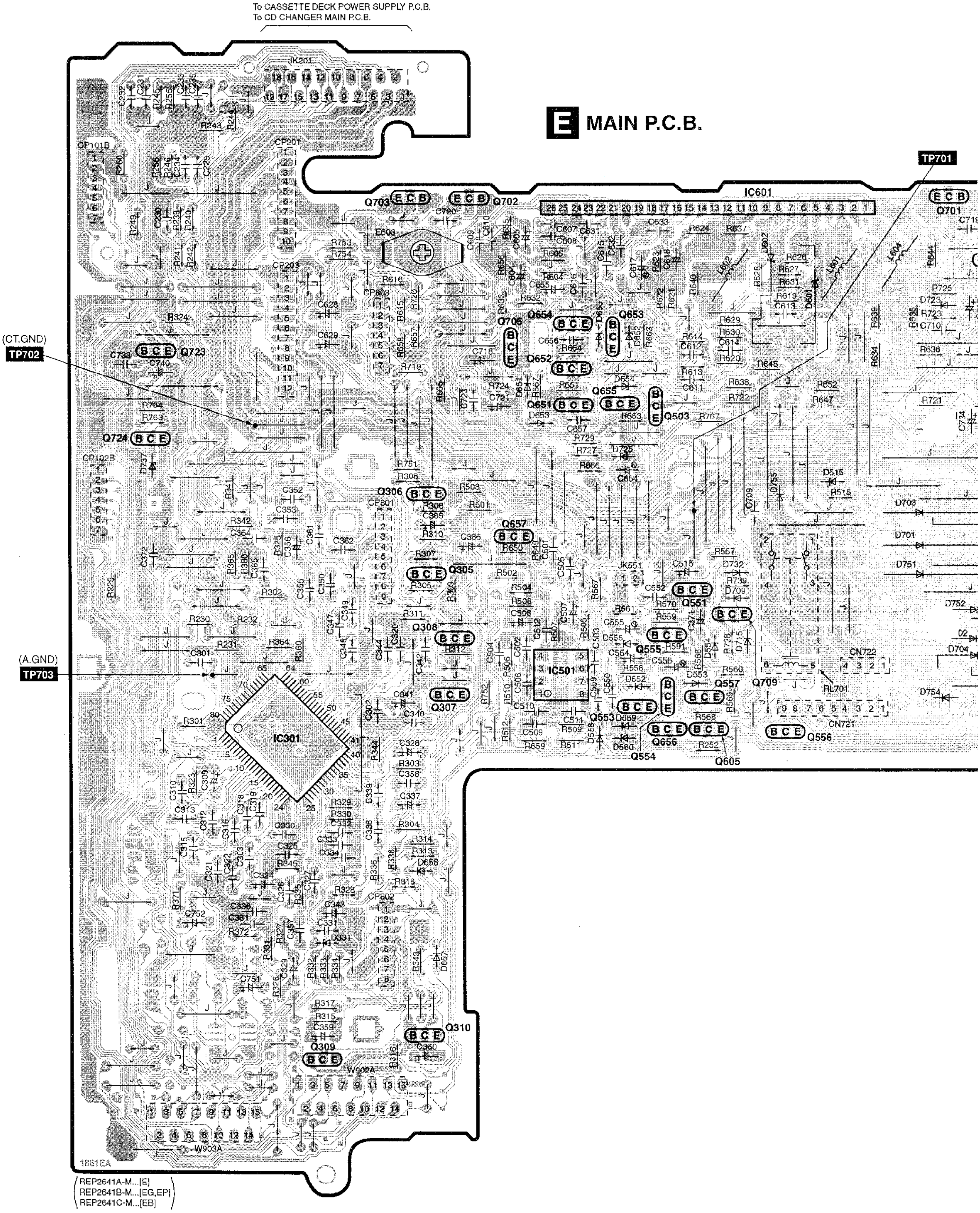
(REP2592C-T)

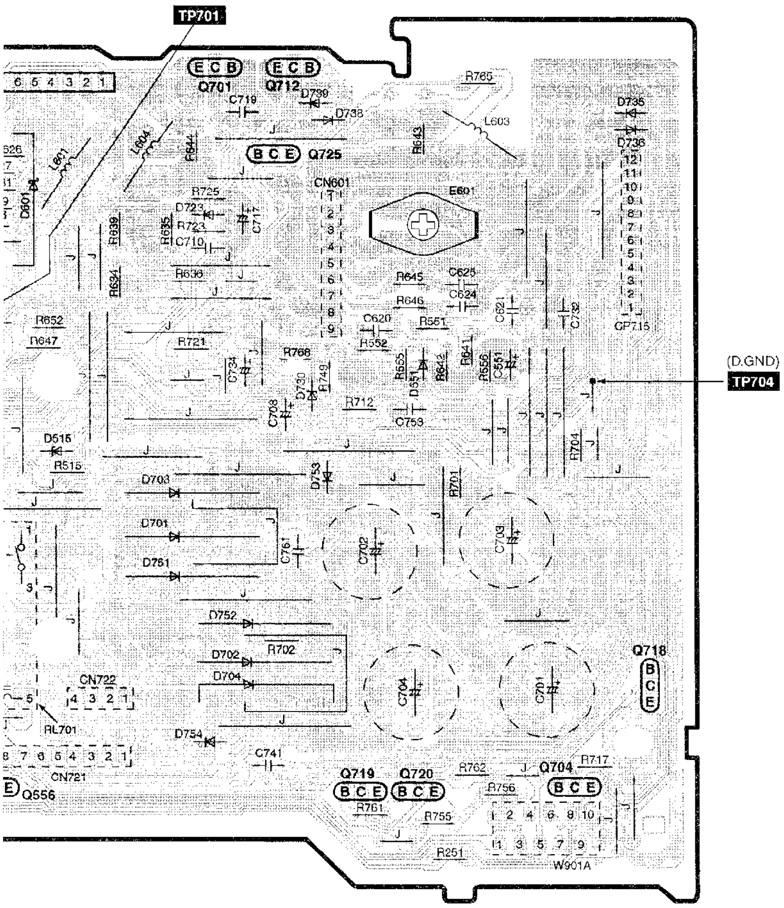
B OPERATION P.C.B.


W904
W903
W902
W901
VR901 (VOLUME)
S912 (S.WOOFER)
For [EG,EP] areas.
S914 (DISP MODE-PTY)
S913 (RS-DISP MODE)
S911 (TUNER/BAND)
S910 (TUNING ∧)
S909 (TUNING ∨)
S907 (FM AUTO/MONO)
S908 (INPUT SELECTOR)
S906 (SET)
S905 (TUNING MODE)
S903 (REC)
S904 (PLAY)
S901 (POWER)
S902 (CLOCK/TIMER)
JK903 (PHONES)
Z901 (SENSOR)
For [E,EB] areas.
For [EG,EP] areas.
Q901
Q902
Q903
Q904
Q906
IC901
IC151
X901
X902
X151
FL901

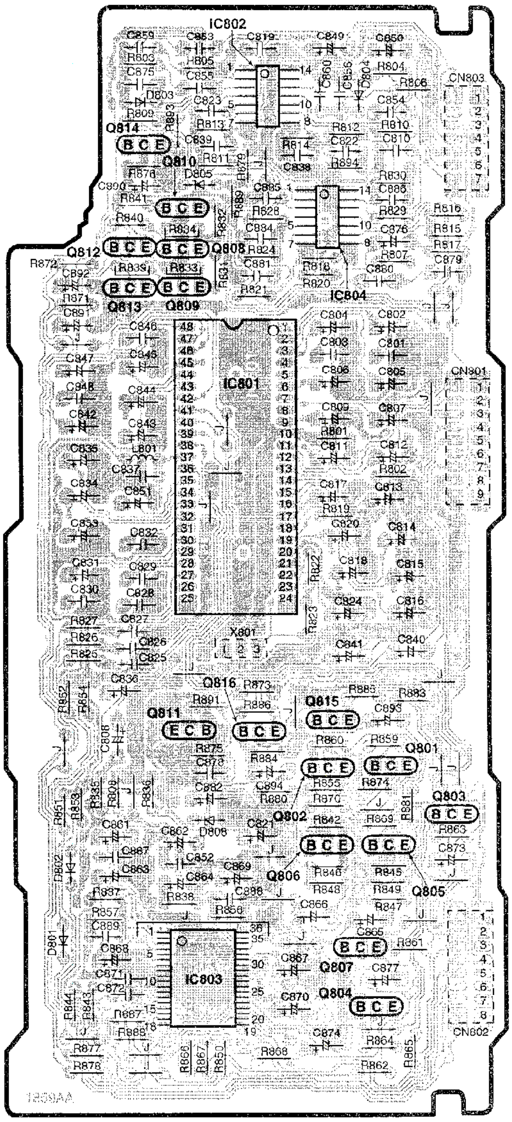
(REP2641A-M...[E]
REP2641B-M...[EG,EP]
REP2641C-M...[EB])

E MAIN P.C.B.


To CASSETTE DECK POWER SUPPLY P.C.B.
To CD CHANGER MAIN P.C.B.
JK201
CP101B
CP201
CP203
CP102B
CP801
CP802
CP803
(CT.GND)
TP702
(A.GND)
TP703
TP701
IC601
IC301
IC501
JK551
CN721
CN722
RL701
W902A
W903A
E603
Q701
Q702
Q703
Q705
Q709
Q723
Q724
Q305
Q306
Q307
Q308
Q309
Q310
Q503
Q551
Q553
Q554
Q555
Q556
Q557
Q605
Q651
Q652
Q653
Q654
Q655
Q656
Q657
1861EA
REP2641A-M...[E]
REP2641B-M...[EG,EP]
REP2641C-M...[EB]

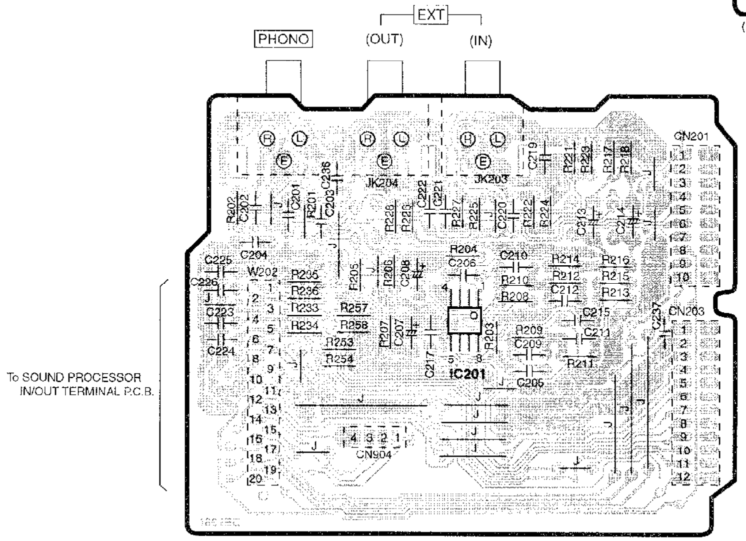

TP701
Q701
Q712
Q725
CN601
E601
L603
L604
D735
D736
CP715
(D.GND)
TP704
C702
C703
C704
C701
Q718
CN722
RL701
CN721
Q556
Q719
Q720
Q704
W901A

C DOLBY PROLOGIC P.C.B.


IC802
CN803
Q814
Q810
Q812
Q808
Q813
Q809
IC804
IC801
CN801
X801
Q816
Q811
Q815
Q801
Q803
Q802
Q806
Q805
IC803
Q807
Q804
CN802
1259AA

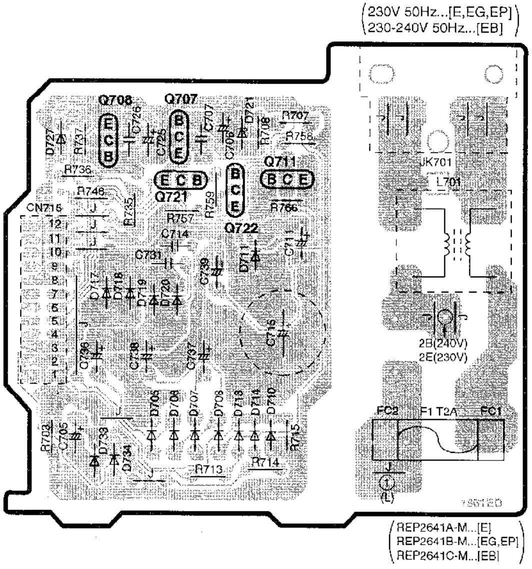
(REP2651C-T)

D IN / OUT TERMINAL P.C.B.

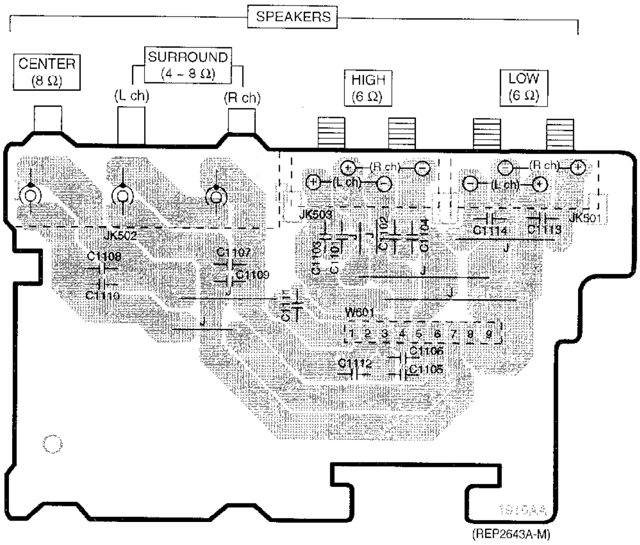

EXT
PHONO
(OUT)
(IN)
R
L
E
JK204
JK203
CN201
W202
IC201
CN203
CN904
To SOUND PROCESSOR IN/OUT TERMINAL P.C.B.

(REP2641A-M...[E]
REP2641B-M...[EG,EP]
REP2641C-M...[EB])

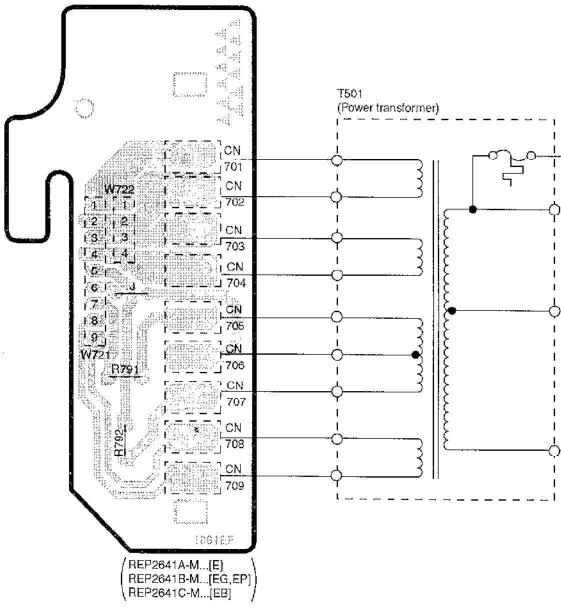
F POWER SUPPLY P.C.B.


AC IN
(230V 50Hz...[E,EG,EP])
(230-240V 50Hz...[EB])
Q708
Q707
Q711
Q721
Q722
E C B
B C E
JK701
L701
CN715
R707
R756
R736
R746
R735
R757
R759
R766
C714
C731
C739
C711
C716
C736
C738
C737
C726
C725
C707
C706
C705
D721
D722
D717
D718
D719
D720
D711
D705
D706
D707
D708
D713
D714
D710
D733
D734
R703
R713
R714
R715
2B(240V)
2E(230V)
FC2
F1 T2A
FC1
(REP2641A-M...[E]
REP2641B-M...[EG,EP]
REP2641C-M...[EB])

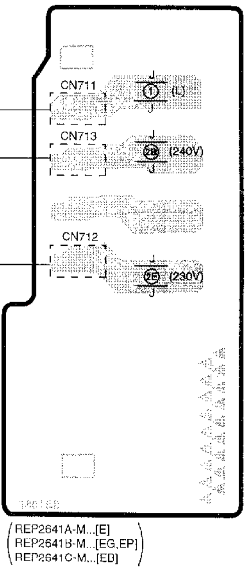
G SPEAKER TERMINAL P.C.B.


SPEAKERS
CENTER
(8 Ω)
SURROUND
(4 ~ 8 Ω)
(L ch)
(R ch)
HIGH
(6 Ω)
LOW
(6 Ω)
(R ch)
(L ch)
JK502
JK503
JK501
C1108
C1110
C1107
C1109
C1103
C1101
C1102
C1104
C1111
C1114
C1113
W601
1 2 3 4 5 6 7 8 9
C1106
C1112
C1105
(REP2643A-M)

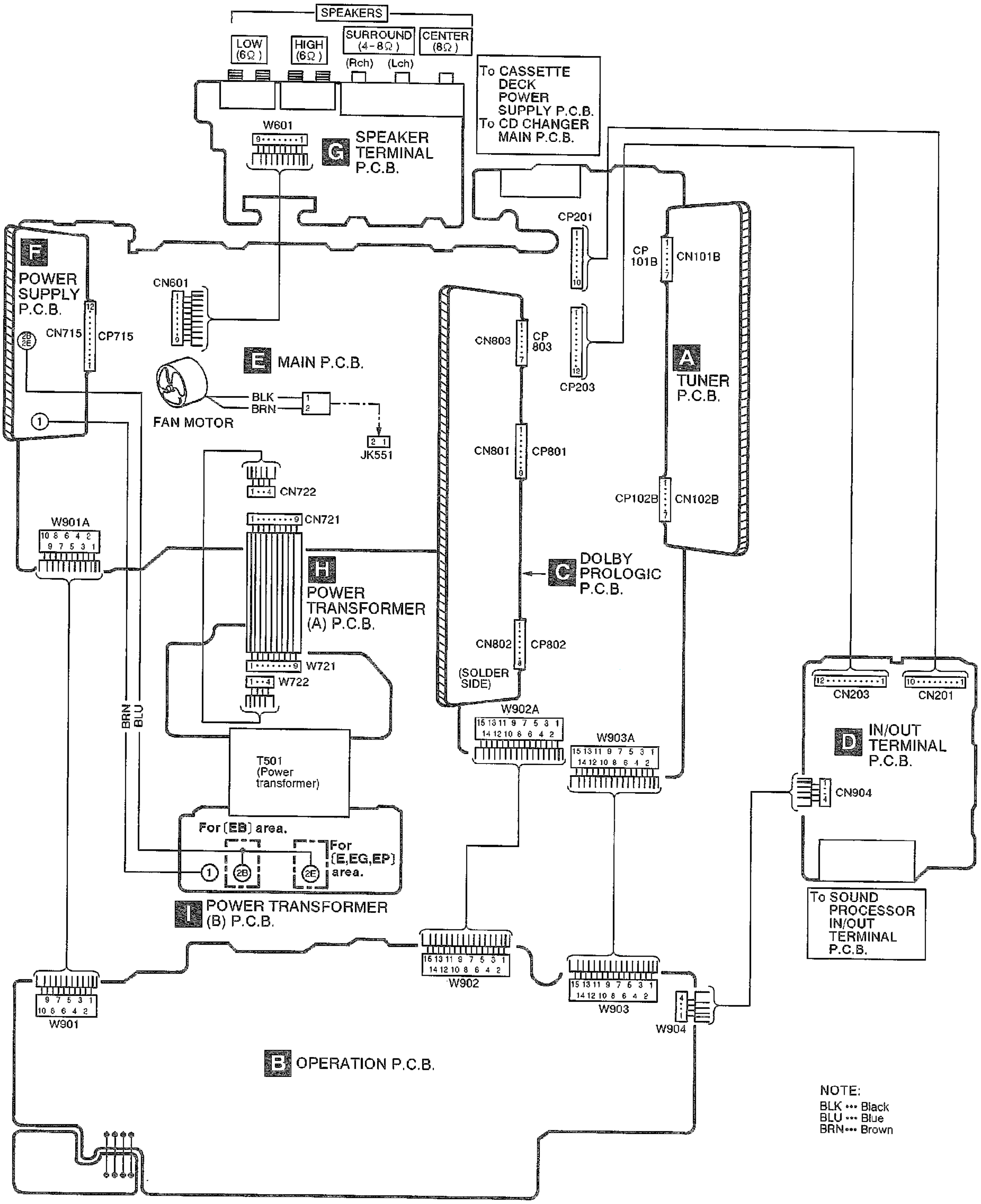
H POWER TRANSFORMER (A) P.C.B.


T501
(Power transformer)
W722
W721
R791
R792
CN 701
CN 702
CN 703
CN 704
CN 705
CN 706
CN 707
CN 708
CN 709
(REP2641A-M...[E]
REP2641B-M...[EG,EP]
REP2641C-M...[EB])

I POWER TRANSFORMER (B) P.C.B.

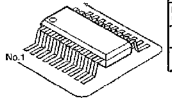

CN711
(L)
CN713
(240V)
CN712
(230V)
(REP2641A-M...[E]
REP2641B-M...[EG,EP]
REP2641C-M...[EB])

■ Wiring Connection Diagram


SPEAKERS
LOW (6Ω)
HIGH (6Ω)
SURROUND (4-8Ω)
CENTER (8Ω)
(Rch)
(Lch)
To CASSETTE DECK POWER SUPPLY P.C.B.
To CD CHANGER MAIN P.C.B.
W601
G SPEAKER TERMINAL P.C.B.
CP201
CP 101B
CN101B
F POWER SUPPLY P.C.B.
CN715
CP715
2B 2E
①
CN601
E MAIN P.C.B.
FAN MOTOR
BLK
BRN
JK551
CN803
CP 803
CP203
A TUNER P.C.B.
CN801
CP801
CN722
CN721
CP102B
CN102B
W901A
H POWER TRANSFORMER (A) P.C.B.
C DOLBY PROLOGIC P.C.B.
CN802
CP802
(SOLDER SIDE)
W721
W722
BRN
BLU
W902A
W903A
CN203
CN201
D IN/OUT TERMINAL P.C.B.
CN904
T501 (Power transformer)
For [EB] area.
For [E,EG,EP] area.
① 2B 2E
I POWER TRANSFORMER (B) P.C.B.
To SOUND PROCESSOR IN/OUT TERMINAL P.C.B.
W902
W903
W901
W904
B OPERATION P.C.B.

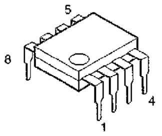
NOTE:
BLK ••• Black
BLU ••• Blue
BRN••• Brown

■ Type Illustration of IC's, Transistors and Diodes

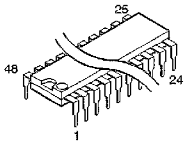


AN6558SFE2	8PIN
LA1833MN-TLM	24PIN
LC72131MDTLM	20PIN
M5228FPE1	14PIN
M62425FPE1	36PIN

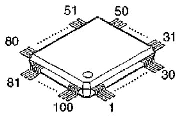
M5218AP



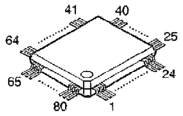
LV1030N



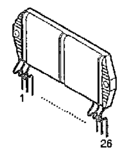
M38199MF107K

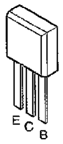

51
50
80
31
81
30
100
1

M62433AFP


41
40
64
25
65
24
80
1

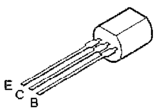
RSN307M44A



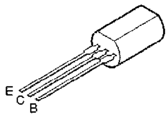


2SA1309AIRTA UN4111AITA
2SC2787LTA UN4112AITA
2SC3311AIQST UN4115TA
2SC3311ARSTA UN4211AITA
2SD1450STA UN4214AITA
UN411FTA

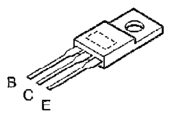
2SB621AQRSTA



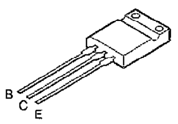
2SC3940AQSTA



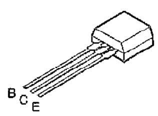
2SB1548PQAU
2SD2374PQAU



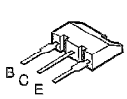
2SB1417PQTA
2SD2137PQTA



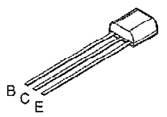
2SD2144STA



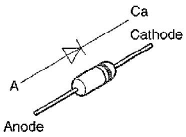
2SB1238QRTV2
2SD1859QRTV2



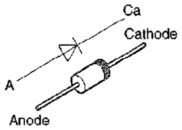
2SA1995RSTA
2SC5398RSTA

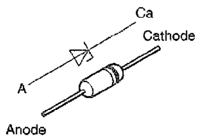


MA185TA


Ca
Cathode
A
Anode

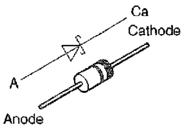
1N5402BF
RL1N4003N02

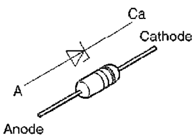

Ca
Cathode
A
Anode


Ca
Cathode
A
Anode

MA4100MTA
MA4120MTA
MA4140MTA
MA4150HTA
MA4180LTA
MA4300MTA

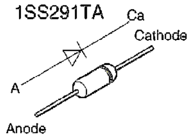
SB360L6508


Ca
Cathode
A
Anode

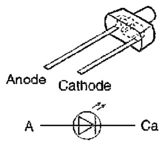

Ca
Cathode
A
Anode

MA4020LTA
MA4030MTA
MA4039MTA
MA4051LTA
MA4051MTA
MA4062HTA
MA4082LTA

MA165TA
MA700TA
1SS291TA


Ca
Cathode
A
Anode

LNJ301MPUJAD

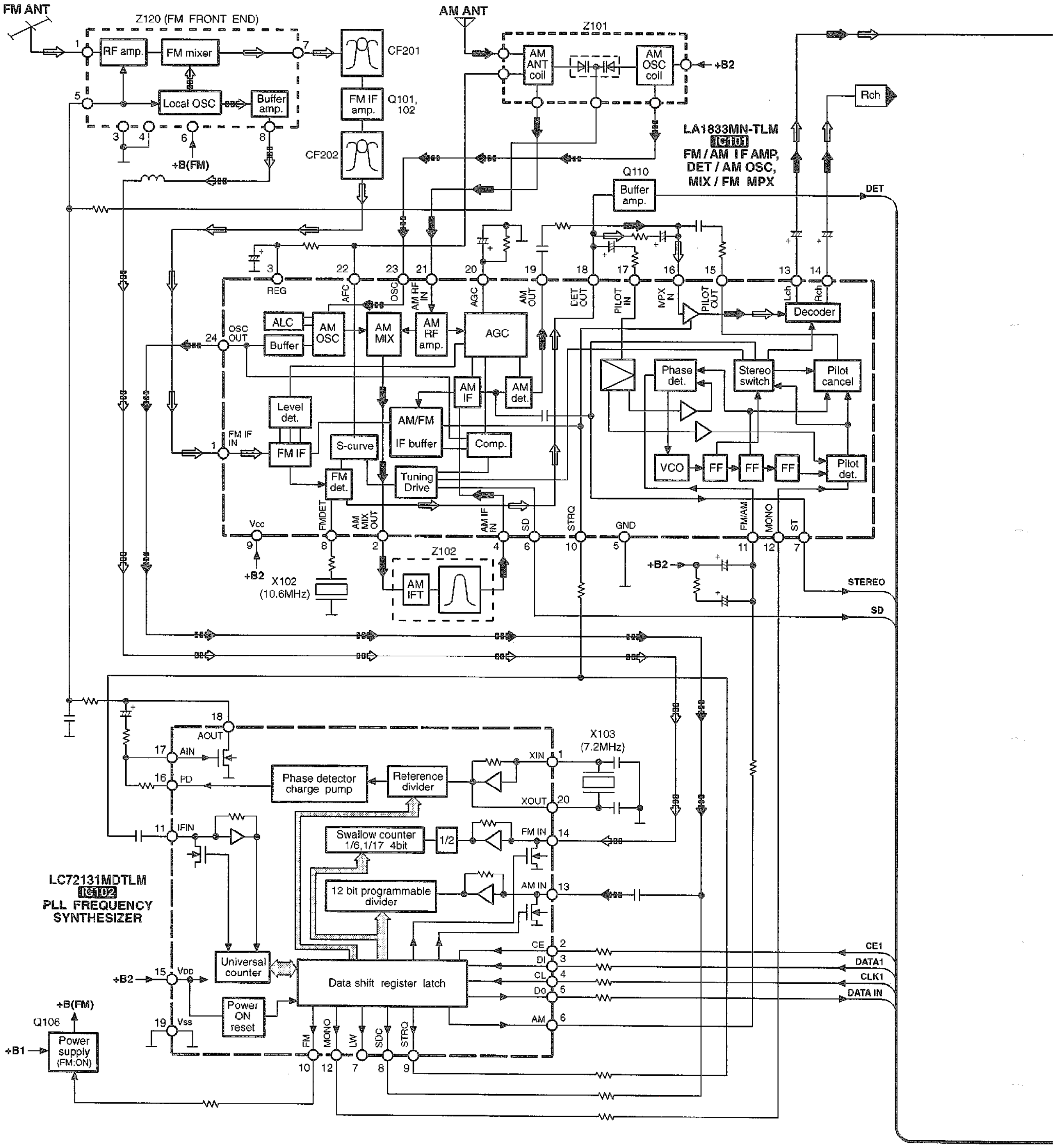

Anode
Cathode
A
Ca

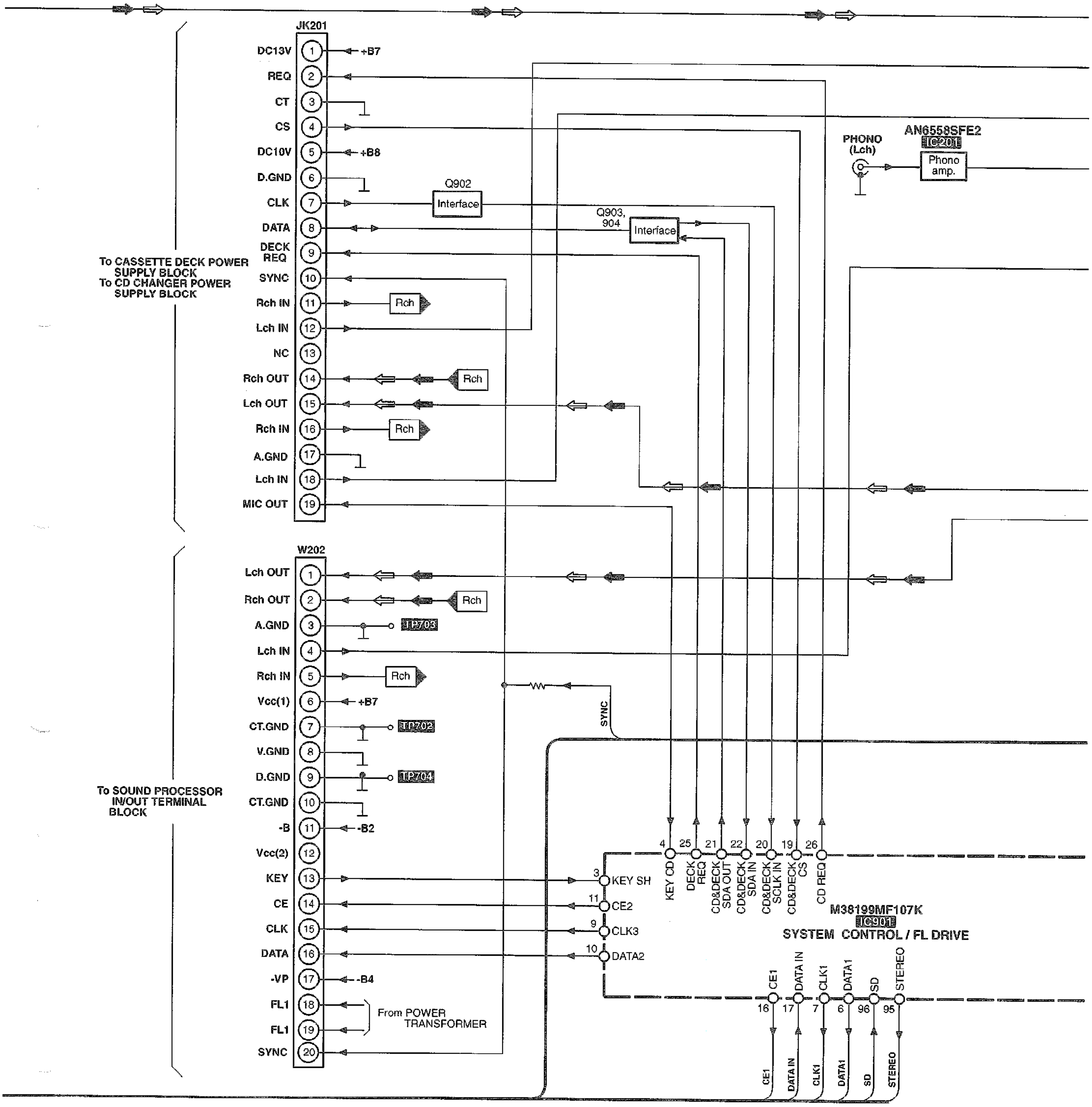
Terminal Function of IC's

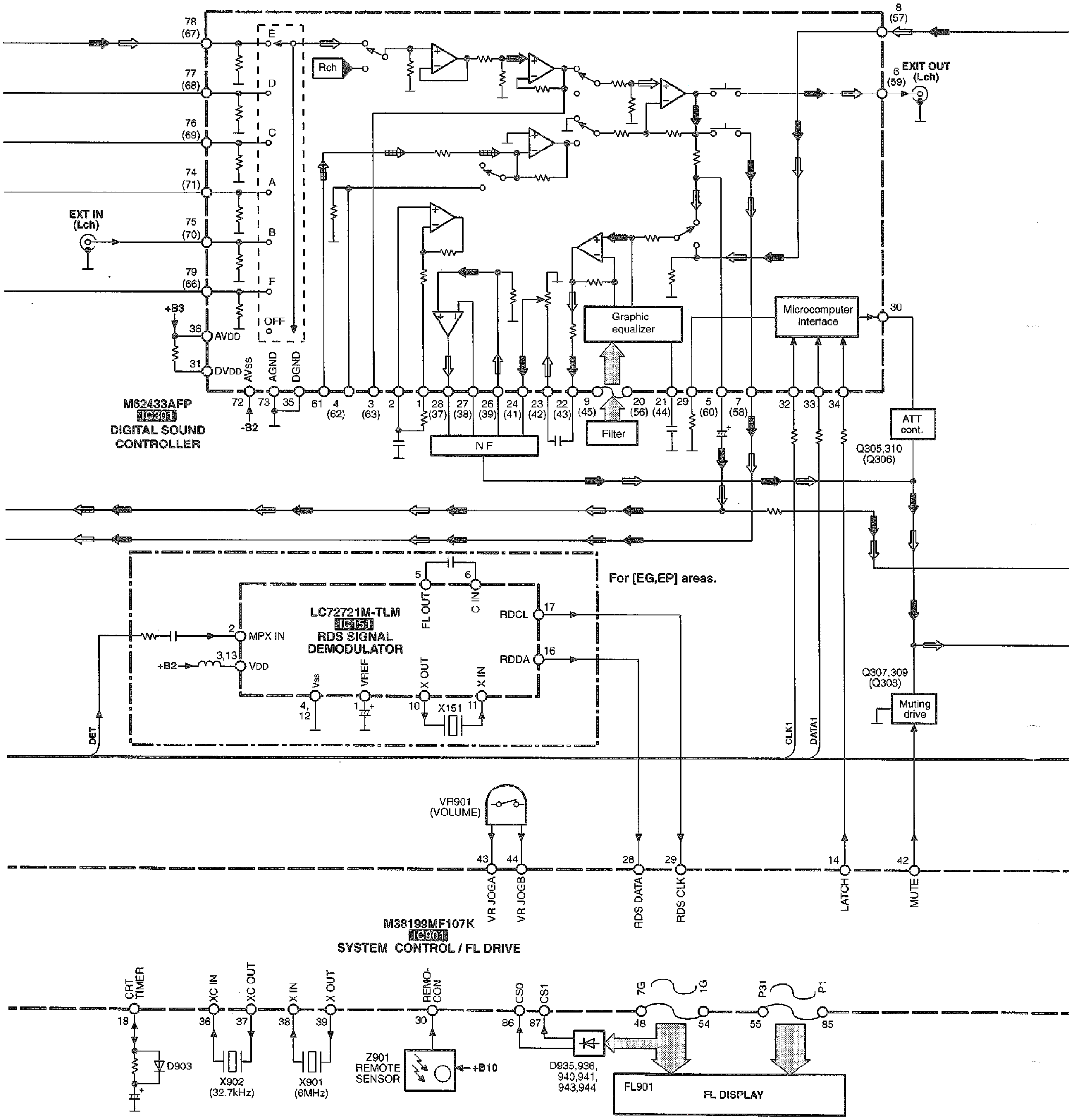
● IC901 (M38199MF107K): System Control / FL Drive

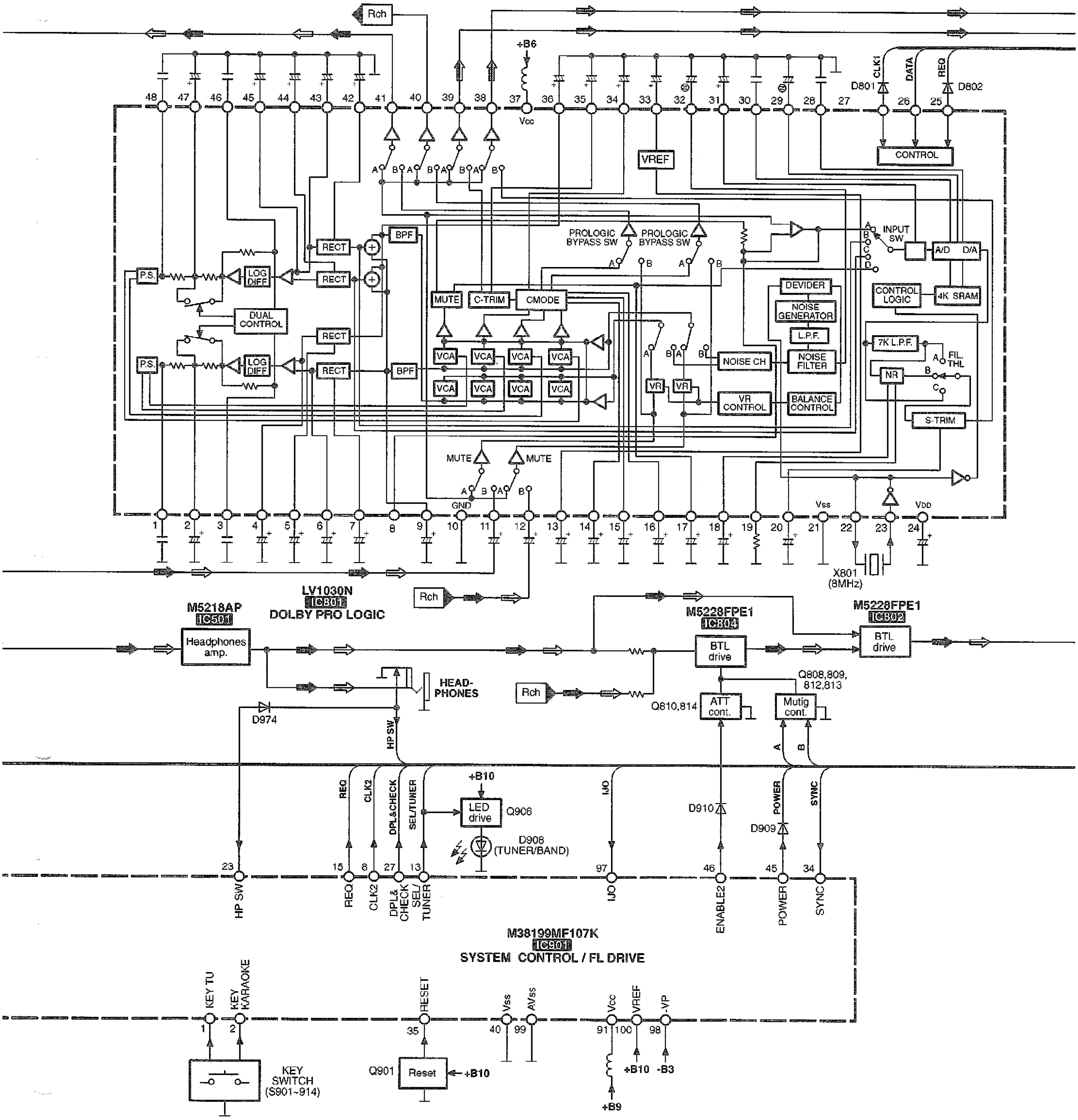
Pin No.	Terminal Name	I/O	Function
1	KEY TU	I	Operation switch signal input (TUNER, TIMER, AMP. section)
2	KEY KRAOKE	I	Operation switch signal input (RDS section)
3	KEY SH	I	Sound processor operation switch signal input
4	KEY CD	I	CD changer operation switch signal input
5	KEY CD2	I	Connected to VREF
6	DATA1	O	Data signal output for M62433, M62425, LC72131 and LV1030
7	CLK1	O	Clock signal output for M62433, M62425, LC72131 and LV1030
8	CLK2	O	Clock signal output for M62425 (center and surround volume of dolby pro logic)
9	CLK3	O	Serial communication signal to sound processor (Clock signal output)
10	DATA2	O	Serial communication signal to sound processor (Data signal output)
11	CE2	O	Serial communication signal to sound processor (Chip enable signal output)
12	SEL/TUNER	O	Not used
13	SEL/TUNER	O	Tuner circuit power control signal output
14	LATCH	O	Latch signal output to M62433
15	REQ	O	Request signal output to LV1030
16	CE1	O	Chip enable signal output to LC72131
17	DATA IN	I	Data signal input from LC72131
18	CR TIMER	I/O	TIME CONSTANT terminal
19	CD & DECK CS	I	Serial data communication starting signal input (CD and DECK mechanism)
20	CD & DECK SCLK IN	I	Serial clock input (CD and DECK mechanism)
21	CD & DECK SDA OUT	O	Serial data output (CD and DECK mechanism)
22	CD & DECK SDA IN	I	Serial data input (CD and DECK mechanism)
23	HP SW	O	Headphones connecting detect signal input
24	SEL MD	O	Not used
25	DECK REQ	O	Cassette deck request signal output
26	CD REQ	O	CD changer request signal output
27	DPL & CHECK	O	Limiter control signal output
28	RDS DATA	I	Not used
29	RDS CLK	I	
30	REMOCON	I	Remote control signal input
31, 32	D1, D2	O	Not used
33	ECHO	O	
34	SYNC	I	AC power source input terminal
35	RESET	I	Reset signal input
36	XC IN	I	Oscillator connected terminal (f = 32.7 kHz)
37	XC OUT	O	
38	X IN	I	Oscillator connected terminal (f = 5 MHz)
39	X OUT	O	
40	Vss	—	GND terminal
41	MIC DET	I	Microphone connecting detect signal input
42	MUTE	O	Muting signal output
43	VR JOGB	I	Volume control signal input
44	VR JOGA	I	
45	POWER	O	Power control signal output
46	ENABLE2	O	Attenuator control signal output
47	NC	—	No used
48~54	7G~1G	O	Grid signal and chip select scan signal output
55~85	P31~P1	O	Segment signal output
86, 87	CS0, CS1	I	Chip select signal input
88	SEL TAPE	O	Connected to VCC
89	MIC S1	O	Microphone signal output (Not used)
90	MIC S2	O	Microphone through signal output (Not used)
91	VCC	—	Power supply
92	VIBRATE	O	Not used, open
93	CHORUS	O	Not used, open
94	WIDE	O	Not used, open
95	STEREO	I	STEREO signal input for tuner circuit
96	SD	I	Station detector signal input for tuner circuit
97	IJO	I	Unusual condition detect terminal ("L": unusual)
98	-VP	—	Reference voltage input (negative)
99	AVSS	—	Connect to GND
100	VREF	—	Reference voltage input (positive)

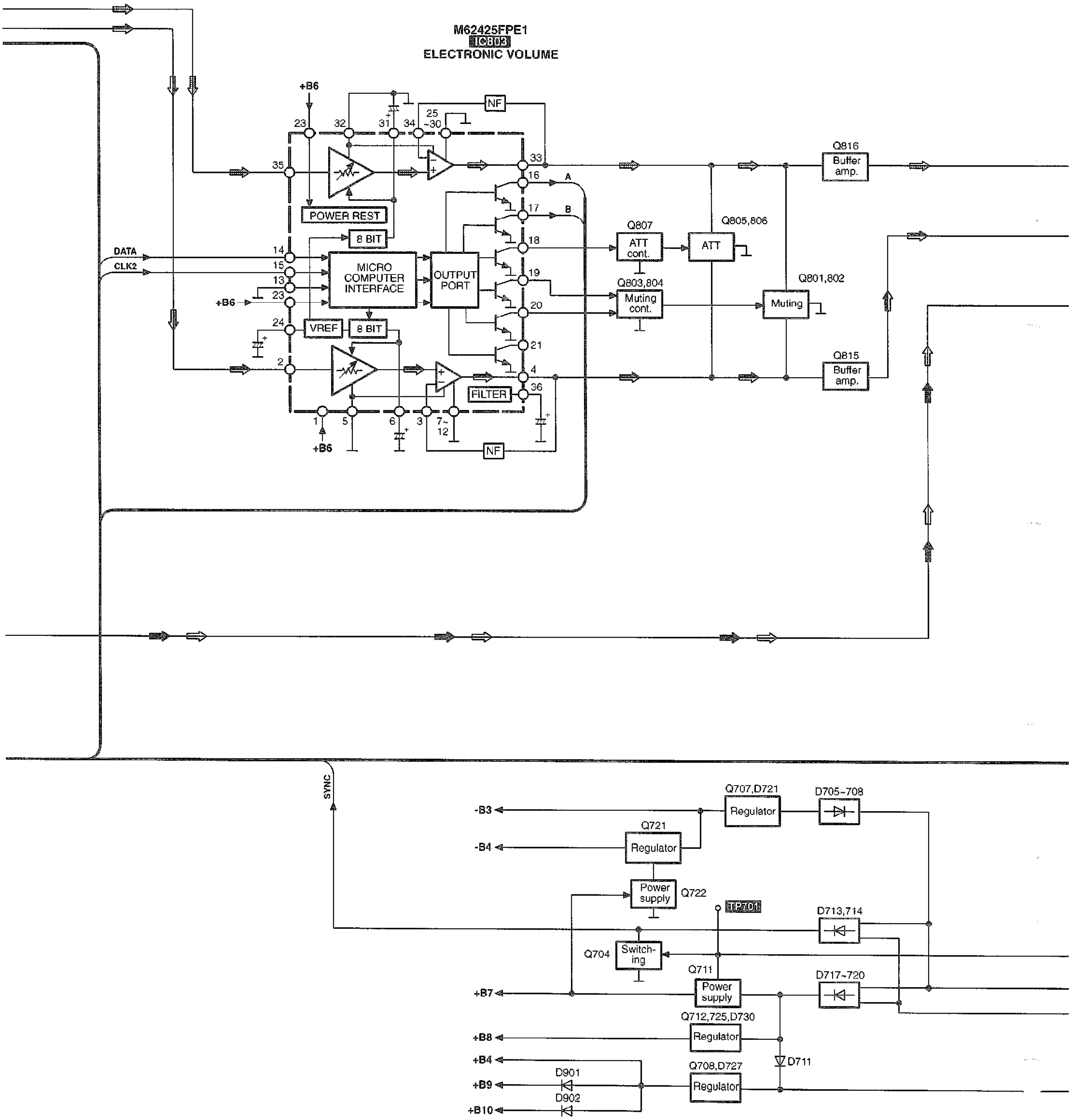
■ Block Diagram

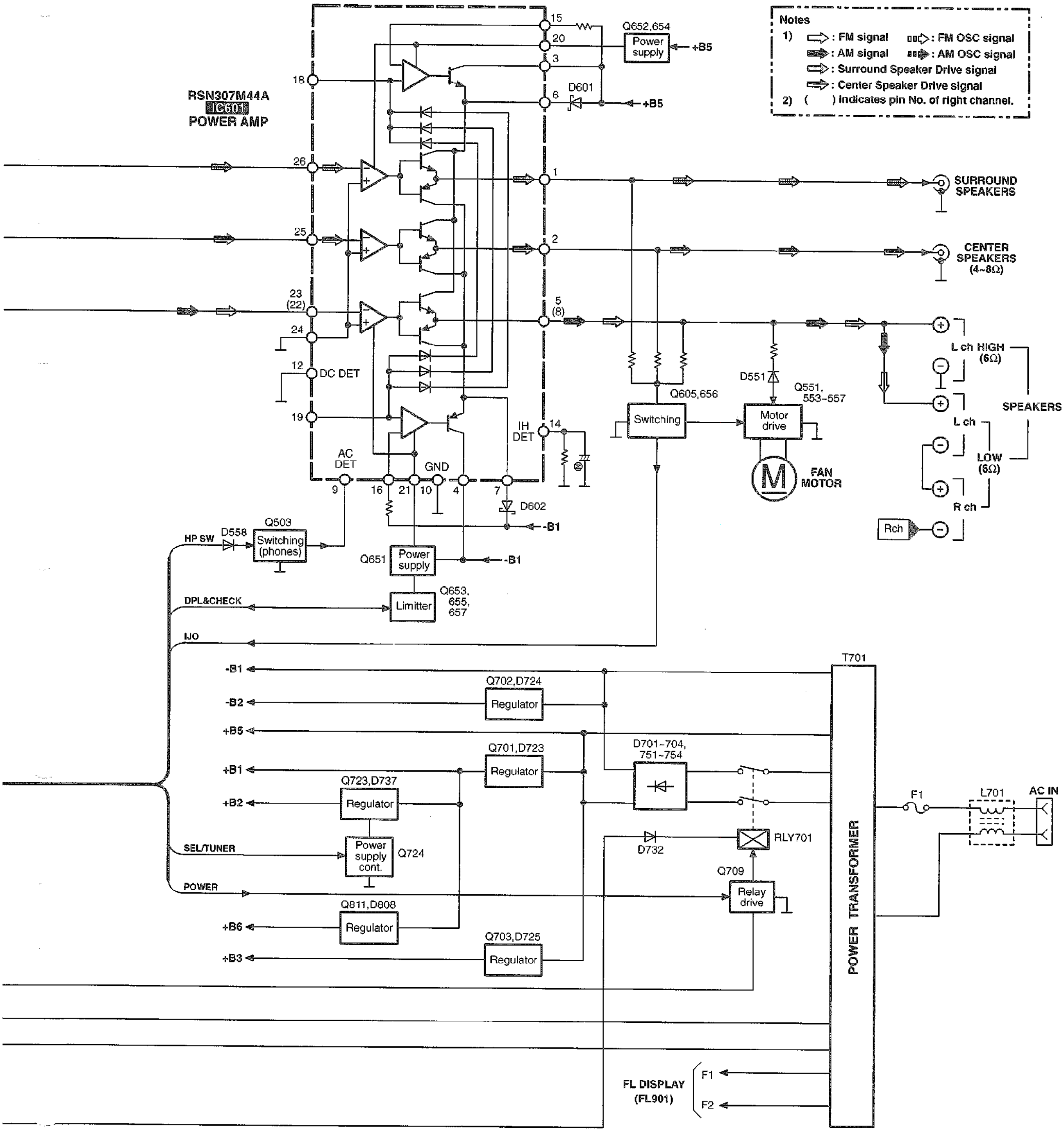

FM ANT
Z120 (FM FRONT END)
RF amp.
FM mixer
Local OSC
Buffer amp.
+B(FM)
CF201
FM IF amp.
Q101, 102
CF202
AM ANT
Z101
AM ANT coil
AM OSC coil
+B2
Rch
LA1833MN-TLM
IC101
FM / AM IF AMP, DET / AM OSC, MIX / FM MPX
Q110
Buffer amp.
DET
REG
AFC
OSC
AM RF IN
AGC
AM OUT
DET OUT
PILOT IN
MPX IN
PILOT OUT
Lch
Rch
Decoder
ALC
Buffer
AM OSC
AM MIX
AM RF amp.
OSC OUT
AM IF
AM det.
Phase det.
Stereo switch
Pilot cancel
Level det.
AM/FM IF buffer
Comp.
FM IF IN
FM IF
S-curve
FM det.
Tuning Drive
VCO
FF
FF
FF
Pilot det.
Vcc
FMDET
AM MIX OUT
AM IF IN
SD
STRQ
GND
FM/AM
MONO
ST
+B2
X102 (10.6MHz)
Z102
AM IFT
STEREO
SD
X103 (7.2MHz)
AOUT
AIN
PD
Phase detector charge pump
Reference divider
XIN
XOUT
IFIN
Swallow counter 1/6,1/17 4bit
1/2
FM IN
12 bit programmable divider
AM IN
LC72131MDTLM
IC102
PLL FREQUENCY SYNTHESIZER
Universal counter
VDD
Data shift register latch
CE
DI
CL
DO
AM
CE1
DATA1
CLK1
DATA IN
Power ON reset
Vss
+B(FM)
Q106
+B1
Power supply (FM:ON)
FM
MONO
LW
SDC
STRQ


JK201
DC13V
REQ
CT
CS
DC10V
D.GND
CLK
DATA
DECK REQ
SYNC
Rch IN
Lch IN
NC
Rch OUT
Lch OUT
Rch IN
A.GND
Lch IN
MIC OUT
+B7
+B8
Q902
Interface
Q903, 904
Interface
Rch
To CASSETTE DECK POWER SUPPLY BLOCK
To CD CHANGER POWER SUPPLY BLOCK
PHONO (Lch)
AN6558SFE2
IC201
Phono amp.
W202
Lch OUT
Rch OUT
A.GND
Lch IN
Rch IN
Vcc(1)
CT.GND
V.GND
D.GND
CT.GND
-B
Vcc(2)
KEY
CE
CLK
DATA
-VP
FL1
FL1
SYNC
TP703
TP702
TP704
+B7
-B2
-B4
From POWER TRANSFORMER
To SOUND PROCESSOR IN/OUT TERMINAL BLOCK
SYNC
KEY SH
CE2
CLK3
DATA2
KEY CD
DECK REQ
CD&DECK SDA OUT
CD&DECK SDA IN
CD&DECK SCLK IN
CD&DECK CS
CD REQ
M38199MF107K
IC901
SYSTEM CONTROL / FL DRIVE
CE1
DATA IN
CLK1
DATA1
SD
STEREO
4
25
21
22
20
19
26
3
11
9
10
16
17
7
6
96
95


78
(67)
77
(68)
76
(69)
74
(71)
75
(70)
79
(66)
E
D
C
A
B
F
OFF
Rch
EXT IN
(Lch)
+B3
36
AVDD
31
DVDD
AVSS
AGND
DGND
72
73
35
61
4
(62)
3
(63)
2
1
28
(37)
27
(38)
26
(39)
24
(41)
23
(42)
22
(43)
9
(45)
20
(56)
21
(44)
29
5
(60)
7
(58)
32
33
34
-B2
M62433AFP
IC301
DIGITAL SOUND
CONTROLLER
N F
Filter
Graphic
equalizer
Microcomputer
interface
30
8
(57)
6
(59)
EXIT OUT
(Lch)
ATT
cont.
Q305,310
(Q306)
Q307,309
(Q308)
Muting
drive
For [EG,EP] areas.
LC72721M-TLM
IC151
RDS SIGNAL
DEMODULATOR
5
6
FL OUT
C IN
RDCL
17
RDDA
16
2
MPX IN
3,13
+B2
VDD
Vss
4,
12
VREF
1
X OUT
10
X151
X IN
11
DET
CLK1
DATA1
VR901
(VOLUME)
43
44
VR JOGA
VR JOGB
28
29
RDS DATA
RDS CLK
14
LATCH
42
MUTE
M38199MF107K
IC901
SYSTEM CONTROL / FL DRIVE
CRT
TIMER
18
D903
XC IN
XC OUT
36
37
X902
(32.7kHz)
X IN
X OUT
38
39
X901
(6MHz)
REMO-
CON
30
Z901
REMOTE
SENSOR
+B10
CS0
CS1
86
87
D935,936,
940,941,
943,944
7G
1G
48
54
P31
P1
55
85
FL901
FL DISPLAY


Rch
+B6
Vcc
CLK1
DATA
REQ
D801
D802
CONTROL
VREF
PROLOGIC BYPASS SW
PROLOGIC BYPASS SW
INPUT SW
A/D
D/A
CONTROL LOGIC
4K SRAM
DEVIDER
NOISE GENERATOR
L.P.F.
NOISE CH
NOISE FILTER
VR CONTROL
BALANCE CONTROL
7K L.P.F.
FIL THL
NR
S-TRIM
BPF
RECT
LOG DIFF
P.S.
DUAL CONTROL
MUTE
C-TRIM
CMODE
VCA
VR
MUTE
GND
Vss
VDD
X801 (8MHz)
LV1030N
IC801
DOLBY PRO LOGIC
M5218AP
IC501
Headphones amp.
HEAD-PHONES
D974
HP SW
M5228FPE1
IC804
BTL drive
M5228FPE1
IC802
BTL drive
Q808,809, 812,813
Q810,814
ATT cont.
Mutig cont.
A
B
+B10
LED drive
Q906
D908 (TUNER/BAND)
REQ
CLK2
DPL&CHECK
SEL/TUNER
IJO
D910
POWER
D909
SYNC
23 HP SW
15 REQ
8 CLK2
27 DPL& CHECK
13 SEL/ TUNER
97 IJO
46 ENABLE2
45 POWER
34 SYNC
M38199MF107K
IC901
SYSTEM CONTROL / FL DRIVE
1 KEY TU
2 KEY KARAOKE
35 RESET
40 Vss
99 AVss
91 Vcc
100 VREF
98 -VP
KEY SWITCH (S901~914)
Q901
Reset
+B10
+B10
-B3
+B9


M62425FPE1
IC803
ELECTRONIC VOLUME
+B6
NF
23
32
31
34
25
~30
33
35
16
A
17
B
POWER REST
8 BIT
18
DATA
CLK2
14
15
13
23
+B6
MICRO
COMPUTER
INTERFACE
OUTPUT
PORT
19
20
24
VREF
8 BIT
21
2
4
FILTER
36
1
5
6
3
7~
12
+B6
NF
Q807
ATT
cont.
ATT
Q805,806
Q803,804
Muting
cont.
Muting
Q801,802
Q816
Buffer
amp.
Q815
Buffer
amp.
SYNC
Q707,D721
Regulator
D705~708
-B3
Q721
Regulator
-B4
Power
supply
Q722
TP701
D713,714
Q704
Switch-
ing
Q711
Power
supply
D717~720
+B7
Q712,725,D730
Regulator
+B8
D711
+B4
Q708,D727
D901
+B9
Regulator
D902
+B10


RSN307M44A
IC601
POWER AMP
15
20
3
6
18
26
25
23
(22)
24
12
DC DET
19
1
2
5
(8)
IH
DET
14
AC
DET
9
16
21
10
4
7
GND
D601
+B5
Q652,654
Power
supply
+B5
D602
-B1
Q651
Power
supply
-B1
Q653,
655,
657
Limitter
HP SW
D558
Q503
Switching
(phones)
DPL&CHECK
IJO
SURROUND
SPEAKERS
CENTER
SPEAKERS
(4~8Ω)
L ch HIGH
(6Ω)
SPEAKERS
L ch
LOW
(6Ω)
R ch
Rch
D551
Q551,
553~557
Q605,656
Switching
Motor
drive
FAN
MOTOR
M
-B1
-B2
+B5
+B1
+B2
SEL/TUNER
POWER
+B6
+B3
Q702,D724
Regulator
Q701,D723
Regulator
Q723,D737
Regulator
Power
supply
cont.
Q724
Q811,D808
Regulator
Q703,D725
Regulator
D701~704,
751~754
D732
RLY701
Q709
Relay
drive
T701
POWER TRANSFORMER
F1
L701
AC IN
FL DISPLAY
(FL901)
F1
F2

Notes
1) ⇨ : FM signal ⇨ : FM OSC signal
➡ : AM signal ➡ : AM OSC signal
⇨ : Surround Speaker Drive signal
⇨ : Center Speaker Drive signal
2) ( ) indicates pin No. of right channel.

Replacement Parts List

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*All parts are supplied by MESA.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0202F-H	CABINET	1	
2	RHD30007-K1	SCREW	4	
3	XTBS3+10JFZ1	SCREW	1	
4	RCW0183-H	KNOB, VOLUME	1	
5	RKA0011-3	FOOT	4	
5-1	SHG1645	RUBBER	4	
6	RKQ0089-2	PCB SPACER	6	
7	RMN0203	PCB HOLDER 1	1	
8	RMN0427	CABLE HOLDER	1	
9	RHD30070	SCREW	1	
10	XTW3+15T	SCREW	4	
11	RMN0426	FL HOLDER	1	
12	RMN0429	PCB HOLDER 2	1	
13	RMN0437	PCB HOLDER 3	1	
14	REZ1088	FLAT CABLE(W901-04)	1	
15	XTBS3+8JFZ1	SCREW	2	
16	REZ1076	WIRE ASS'Y(W601)	1	
17	RFKGAEH600EH	FRONT PANEL ASS'Y	1	(E, EB)
17	RFKGAEH600EG	FRONT PANEL ASS'Y	1	(EG, EP)
18	REX0852	WIRE ASS'Y	1	
19	RGK0894-N	ORNAMENT	1	
20	REM0057	FAN UNIT	1	
21	RLBT4001-D	FERRITE CORE	1	
22	RHD26016	SCREW	1	
23	RHN90001	NUT	1	
24	RKW0506B-Q	FL PANEL	1	
25	RWJ1809150KQ	FLAT CABLE(W721/9P)	1	
26	RWJ1804150KQ	FLAT CABLE(W722/4P)	1	
27	XTBS26+8J	SCREW	5	
28	XTB3+10JFZ	SCREW	10	
29	XTB3+20JFZ	SCREW	6	
30	XTB3+8JFZ	SCREW	6	
A1	RAK-CH219WH	REMOTE CONTROL TRANSMITTER	1	
A1-1	RKK0057-K	BATTERY COVER	1	
A2	REE0393	SPEAKER CORD	2	
A3	REE0853	SPEAKER CORD	2	
⚠ A4	RJA0019-X	AC POWER SUPPLY CORD	1	(E, EG, EP)
⚠ A4	RJA0053-1X	AC POWER SUPPLY CORD	1	(EB)
A5	RQA0117	GUARRANTY CARD	1	(E, EB, EG)
A6	RQT4299-E	OPERATION INSTRUCTIONS	1	(E)
A6	RQT4300-D	OPERATION INSTRUCTIONS	1	(EG)
A6	RQT4301-H	OPERATION INSTRUCTIONS	1	(EG)
A6	RQT4302-B	OPERATION INSTRUCTIONS	1	(EB, EP)
A6	RQT4303-R	OPERATION INSTRUCTIONS	1	(EP)
A7	RSA0007	FM INDOOR ANTENNA	1	
A8	RSA0022-J	AM LOOP ANTENNA	1	
A9	RQCB0169	SERVICE CENTER LIST	1	(E, EB, EG)
A10	RQCA0598	QUICK REFERENCE GUIDE	1	(EB)
⚠ A11	SJP9009	PLUG ADAPTOR	1	(EB)
C101	ECBT1C103NS5	16V 0.01U	1	
C102	ECEA1CKA101B	16V 100U	1	
C103	ECBT1C103NS5	16V 0.01U	1	
C104, 05	ECBT1H102KB5	50V 1000P	2	
C106	ECBT1C103NS5	16V 0.01U	1	
C107	ECBT1H473ZF5	50V 0.047U	1	
C108	ECBT1H8R2KC5	50V 8.2P	1	
C109	ECBT1H102KB5	50V 1000P	1	
C110	ECBT1C103NS5	16V 0.01U	1	
C111	ECEA1EKA4R7B	25V 4.7U	1	
C112	ECBT1C103NS5	16V 0.01U	1	
C113	ECBT1H102KB5	50V 1000P	1	
C114	RCE1HKA3R3BG	50V 3.3U	1	
C115	ECEA1EKA4R7B	25V 4.7U	1	
C116	ECFR1C333KR	16V 0.033U	1	
C117, 18	ECFR1C183KR	16V 0.0018U	2	
C119	ECQP1391JZ3	100V 390P	1	
C120	RCE1CKA100BG	16V 10U	1	
C121	RCE1HKAR47BG	50V 0.47U	1	
C122, 23	ECEA1HKA010B	50V 1U	2	
C124	ECBT1H101KB5	50V 100P	1	
C125	ECEA1CKA220B	16V 22U	1	
C126	ECBT1H473ZF5	50V 0.047U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C127	ECEA1CKA220B	16V 22U	1	
C129, 30	ECEA0JKA101B	6.3V 100U	2	
C131	ECBT1H101KB5	50V 100P	1	
C132	ECBT1H102KB5	50V 1000P	1	
C133, 34	ECBT1H270JU5	50V 27P	2	
C136	ECBT1H102KB5	50V 1000P	1	
C137	ECFR1E472KR	25V 4700P	1	
C138	ECBT1C103KS5	16V 0.01U	1	
C139	ECFR1E472KR	25V 4700P	1	
C141, 42	ECEA1HKA010B	50V 1U	2	
C143, 44	ECBT1C472KR5	16V 4700P	2	
C147	ECBT1H102KB5	50V 1000P	1	
C148	ECBT1C103NS5	16V 0.01U	1	
C149	ECBT1H104ZF5	50V 0.1U	1	
C151	RCE1CKA100BG	16V 10U	1	(EG, EP)
C152	ECBT1H331KB5	50V 330P	1	(EG, EP)
C154	ECBT1H561KB5	50V 560P	1	(EG, EP)
C155	ECBT1H102KB5	50V 1000P	1	(EG, EP)
C156, 57	ECBT1H470J5	50V 47P	2	(EG, EP)
C158, 59	ECEA0JKA470B	6.3V 47U	2	(EG, EP)
C160	ECBT1H102KB5	50V 1000P	1	(EG, EP)
C201, 02	ECBT1H180J5	50V 18P	2	
C203, 04	ECBT1H151KB5	50V 150P	2	
C205, 06	ECBT1H102KB5	50V 1000P	2	
C207, 08	RCE1AKA330BG	10V 33U	2	
C209, 10	ECBT0J223MS5	16V 0.022U	2	
C211, 12	ECBT1C682KR5	16V 6800P	2	
C213, 14	RCE1CKA100BG	16V 10U	2	
C215	ECBT1E103ZF5	25V 0.01U	1	
C217	ECBT1E103ZF5	25V 0.01U	1	
C219-26	ECBT1H101KB5	50V 100P	8	
C229-34	ECBT1H101KB5	50V 100P	6	
C235	ECBT1H104ZF5	50V 0.1U	1	
C236, 37	ECBT1H102KB5	50V 1000P	2	
C301	ECBT1H102KB5	50V 1000P	1	
C302, 03	ECBT1H561KB5	50V 560P	2	
C309	ECEA1HKAR22B	50V 0.22U	1	
C310	ECFR1C823MR	16V 0.082U	1	
C312	ECFR1C823MR	16V 0.082U	1	
C313	ECFR1C103KR	16V 0.01U	1	
C315	ECFR1C223KR	16V 0.022U	1	
C316	ECBT1C332KR5	16V 3300P	1	
C318	ECBT1C682KR5	16V 6800P	1	
C319	ECBT1H102KB5	50V 1000P	1	
C320	ECBT1H681KB5	50V 680P	1	
C321	ECBT1C332KR5	16V 3300P	1	
C322	ECQV1H154JM3	50V 0.15U	1	
C324	RCE1CKA100BG	16V 10U	1	
C325	ECQV1H154JM3	50V 0.15U	1	
C326	ECBT1H102KB5	50V 1000P	1	
C327	ECBT1H471KB5	50V 470P	1	
C328	RCE1CKA470BG	16V 47U	1	
C329	ECEA1CKA220B	16V 22U	1	
C330	ECBT1H681KB5	50V 680P	1	
C331	ECBT1H104ZF5	50V 0.1U	1	
C332-34	ECBT1H470J5	50V 47P	3	
C336	ECBT1H104ZF5	50V 0.1U	1	
C337	RCE1CKA470BG	16V 47U	1	
C338	ECBT1H471KB5	50V 470P	1	
C339	ECBT1H102KB5	50V 1000P	1	
C340	ECQV1H154JM3	50V 0.15U	1	
C341	RCE1CKA100BG	16V 10U	1	
C342	ECQV1H154JM3	50V 0.15U	1	
C343	ECEA1CKA220B	16V 22U	1	
C344	ECBT1C332KR5	16V 3300P	1	
C346	ECBT1H102KB5	50V 1000P	1	
C347	ECBT1C682KR5	16V 6800P	1	
C349	ECBT1C332KR5	16V 3300P	1	
C350	ECFR1C223KR	16V 0.022U	1	
C352	ECFR1C103KR	16V 0.01U	1	
C353	ECFR1C823MR	16V 0.082U	1	
C355	ECFR1C823MR	16V 0.082U	1	
C356	ECEA1HKAR22B	50V 0.22U	1	
C357, 58	ECQV1H104JM3	50V 0.1U	2	
C359	RCE1HKA3R3BG	50V 3.3U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C360	RCE1HKA4R7BG	50V 4.7U	1	
C361,62	ECBT1C222KR5	16V 2200P	2	
C364	ECBT1C152KR5	16V 1500P	1	
C365	ECQV1H154JM3	50V 0.15U	1	
C371	ECEA0JKA101B	6.3V 100U	1	
C372	ECBT1H104ZF5	50V 0.1U	1	
C381	ECBT1E103ZF5	25V 0.01U	1	
C385,86	RCE1CKA100BG	16V 10U	2	
C395,96	ECBT1H473ZF5	50V 0.047U	2	
C501-06	ECBT1H101KB5	50V 100P	6	
C507,08	RCE1CKA100BG	16V 10U	2	
C509-12	ECBT1E103ZF5	25V 0.01U	4	
C515	ECEA1CKA330B	16V 33U	1	
C550	ECBT1E103ZF5	25V 0.01U	1	
C551	ECEA1HKA2R2B	50V 2.2U	1	
C552	ECBT1E103ZF5	25V 0.01U	1	
C554	ECA1AM221B	10V 220U	1	
C555,56	ECEA1CKN100B	16V 10U	2	
C559	ECBT1E103ZF5	25V 0.01U	1	
C604,05	RCE1CKA100BG	16V 10U	2	
C607-10	ECBT1H471KB5	50V 470P	4	
C611-14	ECBT1H150JC5	50V 15P	4	
C615,16	ECKR2H103ZU	500V 0.01U	2	
C617	ECEA1HN2R2SB	50V 2.2U	1	
C618	ECA1HM101B	50V 100U	1	
C620,21	ECQV1H473JM3	50V 0.047U	2	
C624,25	ECQV1H473JM3	50V 0.047U	2	
C628,29	RCE1CKA100BG	16V 10U	2	
C631,32	ECBT1H102KB5	50V 1000P	2	
C633	ECBT1E103ZF5	25V 0.01U	1	
C654	ECEA1EKN3R3B	25V 3.3U	1	
C655	ECA2AM010B	100V 1U	1	
C656	ECBT1E103ZF5	25V 0.01U	1	
C657	ECBT1H104ZF5	50V 0.1U	1	
⚠ C701-04	ECA1VM472E	35V 4700U	4	
C705	RCE1CKA100BG	16V 10U	1	
C706	RCE1VKA100BG	35V 10U	1	
C707	ECBT1E103ZF5	25V 0.01U	1	
C708	RCE1CKA100BG	16V 10U	1	
C709	ECBT1H104ZF5	50V 0.1U	1	
C710	ECBT1E103ZF5	25V 0.01U	1	
C711	RCE1EM471BV	25V 470U	1	
C714	ECBT1H102KB5	50V 1000P	1	
⚠ C715	ECA1EM472E	25V 4700U	1	
C717	ECEA1CKA330B	16V 33U	1	
C718	RCE1AKA101BG	10V 100U	1	
C719,20	ECBT1E103ZF5	25V 0.01U	2	
C721	RCE1AKA101BG	10V 100U	1	
C723	ECBT1E103ZF5	25V 0.01U	1	
C725	RCE1CKA100BG	16V 10U	1	
C726	ECBT1E103ZF5	25V 0.01U	1	
C731	ECBT1H102KB5	50V 1000P	1	
C732	ECBT1E223ZF5	25V 0.022U	1	
C733	ECBT1E103ZF5	25V 0.01U	1	
C734	RCE1CKA100BG	16V 10U	1	
⚠ C736	ECA1EM101B	16V 220UF	1	
⚠ C737,38	ECA1HM101B	50V 100U	2	
⚠ C739	ECA1JM101B	63V 100U	1	
C740	RCE1CKA100BG	16V 10U	1	
C741	ECBT1H104ZF5	50V 0.1U	1	
C751,52	ECA1AM471B	10V 470U	2	
C753	ECBT1H101KB5	50V 100P	1	
C761	ECQE1104KF3	100V 0.1U	1	
C801	ECQV1H154JM3	50V 0.15U	1	
C802	RCE1HKA3R3BG	50V 3.3U	1	
C803	ECQV1H154JM3	50V 0.15U	1	
C804	RCE1HKA4R7BG	50V 4.7U	1	
C805	RCE1HKAR47BG	50V 0.47U	1	
C806	RCE1HKA4R7BG	50V 4.7U	1	
C807	RCE1HKAR47BG	50V 0.47U	1	
C808	RCE1CKA100BG	16V 10U	1	
C809	ECEA1HKA010B	50V 1U	1	
C810	ECBT1E103ZF5	25V 0.01U	1	
C811,12	ECEA1CKA330B	16V 33U	2	
C813	ECA1CM221B	16V 220U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C814-17	RCE1CKA100BG	16V 10U	4	
C818	ECEA1HKA2R2B	50V 2.2U	1	
C819	ECBT1E103ZF5	25V 0.01U	1	
C820	ECEA1HKAR33B	50V 0.33UF	1	
C821	ECA1CM221B	16V 220U	1	
C822,23	ECBT1H101KB5	50V 100P	2	
C824	ECA1CM221B	16V 220U	1	
C825,26	ECBT1H101KB5	50V 100P	2	
C827	ECBT1H330J5	50V 33P	1	
C828	ECFR1C823MR	16V 0.082U	1	
C829	ECFR1E332KR	25V 3300P	1	
C830	ECFR1C823MR	16V 0.082U	1	
C831	RCE1HKAR47BG	50V 0.47U	1	
C832	ECQV1H473JM3	50V 0.047U	1	
C833	ECA1CM221B	16V 220U	1	
C834	RCE1HKAR47BG	50V 0.47U	1	
C835	RCE1AKA470BG	10V 47U	1	
C836	ECEA1HKA010B	50V 1U	1	
C837	ECBT1H104ZF5	50V 0.1U	1	
C838,39	ECBT1H101KB5	50V 100P	2	
C840,41	RCE1CKA100BG	16V 10U	2	
C842	RCE1HKAR47BG	50V 0.47U	1	
C843	RCE1HKA4R7BG	50V 4.7U	1	
C844	RCE1HKAR47BG	50V 0.47U	1	
C845	RCE1HKA4R7BG	50V 4.7U	1	
C846	ECQV1H154JM3	50V 0.15U	1	
C847	RCE1HKA3R3BG	50V 3.3U	1	
C848	ECQV1H154JM3	50V 0.15U	1	
C849,50	RCE1CKA100BG	16V 10U	2	
C851	RCE1CKA470BG	16V 47U	1	
C852	ECBT1H681KB5	50V 680P	1	
C853	ECQV1H473JM3	50V 0.047U	1	
C854	ECQV1H683JM3	50V 0.068U	1	
C855	ECQV1H473JM3	50V 0.047U	1	
C856	ECQV1H683JM3	50V 0.068U	1	
C859,60	ECBT1H101KB5	50V 100P	2	
C861,62	RCE1CKA100BG	16V 10U	2	
C863,64	ECEA1CKA220B	16V 22U	2	
C865,66	RCE1HKA3R3BG	50V 3.3U	2	
C867-69	ECEA1CKA330B	16V 33U	3	
C870	RCE1CKA100BG	16V 10U	1	
C871,72	ECBT1H470J5	50V 47P	2	
C873,74	ECEA0JKA470B	6.3V 47U	2	
C875	ECQV1H823JM3	50V 0.082U	1	
C876	ECEA1CKA330B	16V 33U	1	
C877	ECEA0JKA101B	6.3V 100U	1	
C878	ECBT1E103ZF5	25V 0.01U	1	
C879	ECFR1C683KR	16V 0.068U	1	
C880	ECFR1C333KR	16V 0.033U	1	
C881	ECQV1H154JM3	50V 0.15U	1	
C882	ECEA1CKA101B	16V 100U	1	
C884	ECQV1H104JM3	50V 0.1U	1	
C885	ECBT1C472KR5	16V 4700P	1	
C886	ECBT1H101KB5	50V 100P	1	
C887	ECBT1H102KB5	50V 1000P	1	
C888,89	ECBT1H221KB5	50V 220P	2	
C890	RCE1AKA330BG	10V 33U	1	
C891,92	RCE1AKA470BG	10V 47U	2	
C893,94	RCE1CKA100BG	16V 10U	2	
C901	ECBT1H104ZF5	50V 0.1U	1	
C902	ECA0JM102B	6.3V 1000U	1	
C903,04	ECBT1E103ZF5	25V 0.01U	2	
C905-08	ECBT1H471KB5	50V 470P	4	
C909	ECBT1H102KB5	50V 1000P	1	
C910	ECBT1H150JC5	50V 15P	1	
C911	ECBT1H180JC5	50V 18P	1	
C912	ECBT1H104ZF5	50V 0.1U	1	
C913	RCE1CKA100BG	16V 10U	1	
C914	ECEA1HKA2R2B	50V 2.2U	1	
C915	ECBT1E103ZF5	25V 0.01U	1	
C916	ECA0JKF101B	6.3V 100U	1	
C917	ECBT1E103ZF5	25V 0.01U	1	
C918	ECEA0JKA221B	6.3V 220U	1	
C919,20	ECEA1HKS2R2B	50V 2.2U	2	
C921	ECBT1H102KB5	50V 1000P	1	

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
C922	ECEA1VKA330B	35V 33U	1	
C1101, 02	ECBT1H473ZF5	50V 0.047U	2	
C1103-06	ECBT1H102KB5	50V 1000P	4	
C1107, 08	ECBT1H473ZF5	50V 0.047U	2	
C1109-12	ECBT1H102KB5	50V 1000P	4	
C1113, 14	ECBT1H473ZF5	50V 0.047U	2	
CF201	RLFFETNGD01L	CERAMIC FILTER	1	
CF202	RLFFETMGD01L	CERAMIC FILTER	1	
CN101B, 2B	RJU100W07	CONNECTOR (7P)	2	
CN201	RJU057W010	CONNECTOR (10P)	1	
CN203	RJU057W012	CONNECTOR (12P)	1	
CN601	SJT30943-V	CONNECTOR (9P)	1	
CN701-09	RJS1A1101T1	CONNECTOR (1P)	9	
CN711-13	RJS1A1101T1	CONNECTOR (1P)	3	
CN715	RJU057W012	CONNECTOR (12P)	1	
CN721	SJT30943-V	CONNECTOR (9P)	1	
CN722	SJT30443-V	CONNECTOR (4P)	1	
CN801	RJU057W009	CONNECTOR (9P)	1	
CN802	RJU057W008	CONNECTOR (8P)	1	
CN803	RJU057W007	CONNECTOR (7P)	1	
CN904	RJS4T7ZA	CONNECTOR (4P)	1	
CP101B, 2B	RJT100W07	CONNECTOR (7P)	2	
CP201	RJT057W010-1	CONNECTOR (10P)	1	
CP203	RJT057W012-1	CONNECTOR (12P)	1	
CP715	RJT057W012-1	CONNECTOR (12P)	1	
CP801	RJT057W009-1	CONNECTOR (9P)	1	
CP802	RJT057W008-1	CONNECTOR (8P)	1	
CP803	RJT057W007-1	CONNECTOR (7P)	1	
⚠ D101	MA4051MTA	DIODE	1	
D151	MA4051MTA	DIODE	1	(EG, EP)
D331	MA4051LTA	DIODE	1	
⚠ D515	MA4140MTA	DIODE	1	
D551, 52	MA165	DIODE	2	
D553	MA700TA	DIODE	1	
D554	MA165	DIODE	1	
D555	MA4100MTA	DIODE	1	
D558	MA165	DIODE	1	
D559, 60	MA4020LTA	DIODE	2	
D601, 02	SB360L6508	DIODE	2	
⚠ D651	MA4180LTA	DIODE	1	
⚠ D652, 53	MA4140MTA	DIODE	2	
D654	MA4030MTA	DIODE	1	
D655	MA185TA	DIODE	1	
D657, 58	MA165	DIODE	2	
⚠ D701-04	1N5402BF	DIODE	4	
⚠ D705-08	RL1N4003N02	DIODE	4	
D709	MA165	DIODE	1	
D710	MA4051MTA	DIODE	1	
D711	RL1N4003N02	DIODE	1	
⚠ D713, 14	MA185TA	DIODE	2	
D715	MA165	DIODE	1	
⚠ D717-20	RL1N4003N02	DIODE	4	
⚠ D721	MA4300MTA	DIODE	1	
⚠ D723	MA4150M	DIODE	1	
⚠ D725	MA4082LTA	DIODE	1	
⚠ D727	MA4062-H	DIODE	1	
⚠ D730	MA4100MTA	DIODE	1	
D732-36	MA165	DIODE	5	
⚠ D737	MA4082LTA	DIODE	1	
D738, 39	MA165	DIODE	2	
⚠ D751, 52	1N5402BF	DIODE	2	
⚠ D753-55	RL1N4003N02	DIODE	3	
D801-05	MA165	DIODE	5	
⚠ D808	MA4120MTA	DIODE	1	
D901, 02	1SS291TA	DIODE	2	
D903, 04	MA165	DIODE	2	
D905	1SS291TA	DIODE	1	
D906, 07	MA165	DIODE	2	
D908	LNJ301MPUJAD	LED	1	
D909, 10	MA165	DIODE	2	
D933	MA165	DIODE	1	(EG, EP)

Ref. No.	Part No.	Part Name & Description	Pcs	Remarks
D935, 36	MA165	DIODE	2	
D940, 41	MA165	DIODE	2	
D943, 44	MA165	DIODE	2	
D971, 72	MA165	DIODE	2	
⚠ D973	MA4039MTA	DIODE	1	
D974	MA165	DIODE	1	
E601	SNE1004-2	EARTH TERMINAL	1	
E603	SNE1004-2	EARTH TERMINAL	1	
⚠ F1	XBA2C20TB0	FUSE	1	
FC1, C2	EYF52BC	FUSE HOLDER	2	
FL901	RSL0251-F	DISPLAY TUBE	1	
IC101	LA1833MN-TLM	IC	1	
IC102	LC72131MDTLM	IC	1	
IC151	LC72721M-TLM	IC	1	(EG, EP)
IC201	AN6558SFE2	IC	1	
IC301	M62433AFP	IC	1	
IC501	M5218AP	IC	1	
⚠ IC601	RSN307M44A	IC	1	
IC801	LV1030N	IC	1	
IC802	M5228FPE1	IC	1	
IC803	M62425FPE1	IC	1	
IC804	M5228FPE1	IC	1	
IC901	M38199MF107K	IC	1	
JK101	RJH521DM	ANTENNA	1	
JK201	RJT065K19	SYSTEM	1	
JK203	SJF3068-7N	EXT IN	1	
JK204	SJF3069-5N	EXT OUT, PHONO	1	
JK501	RJR0054B	SPEAKER	1	
JK502	RJH3301-J	SURROUND/CENTER SPEAKER	1	
JK503	RJR0054C	SPEAKER	1	
JK551	SJT3213	FAN MOTOR	1	
JK701	SJS9236	AC INLET	1	
JK903	RJJ37TN01-C	HEADPHONES	1	
L101, 02	ELESNR68MA	COIL	2	
L103	ELEXTR47MA9	COIL	1	
L151, 52	ELEXT101KA9	COIL	2	(EG, EP)
L601-04	RLQYR73MW1-0	COIL	4	
⚠ L701	RLQZ271M-K	COIL	1	
L801	ELEXT1R0KA9	COIL	1	
L901	RLQA100JT-Y	COIL	1	
P1	RPF0139	POLYETHYLENE COVER	1	
P2	RPG3514	PACKING CASE (SH-EH600)	1	
P2	RPG3515	PACKING CASE (RS-EH600)	1	
P2	RPG3516	PACKING CASE (SL-EH600)	1	
P2	RPG3517	PACKING CASE (SA-EH600)	1	
P3	RPG3863	PACKING CASE (SYSTEM)	1	(E)
P3	RPG3864	PACKING CASE (SYSTEM)	1	(EP)
P3	RPG3943	PACKING CASE (SYSTEM)	1	(EG)
P3	RPG3944	PACKING CASE (SYSTEM)	1	(EB)
P4	RPN1037	PAD (RS-EH600)	1	
P4	RPN1038	PAD (SH-EH600)	1	
P4	RPN1039-1	PAD (SL-EH600)	1	
P4	RPN1117	PAD (SA-EH500)	1	
P5	RPQ0769	SPACER	1	
P6	SPP740	SHEET	1	
Q101, 02	2SC2787L	TRANSISTOR	2	
Q106	UN4111	TRANSISTOR	1	
Q110	2SC3311AR	TRANSISTOR	1	
Q305, 06	2SD1450STA	TRANSISTOR	2	
Q307, 08	2SD2144STA	TRANSISTOR	2	
Q309, 10	UN4115TA	TRANSISTOR	2	
Q503	2SD1450STA	TRANSISTOR	1	
Q551	2SA1995RSTA	TRANSISTOR	1	
Q553	2SD2144STA	TRANSISTOR	1	
Q554	2SA1995RSTA	TRANSISTOR	1	
Q555	2SD2144STA	TRANSISTOR	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
Q556	2SC5398RSTA	TRANSISTOR	1	
Q557	2SA1995RSTA	TRANSISTOR	1	
Q605	2SC5398RSTA	TRANSISTOR	1	
⚠ Q651	2SB1238QRTV2	TRANSISTOR	1	
Q652	2SD1859QRTV2	TRANSISTOR	1	
Q653	UN4112AITA	TRANSISTOR	1	
Q654	2SD1859QRTV2	TRANSISTOR	1	
Q655	UN4211TA	TRANSISTOR	1	
Q656	2SC5398RSTA	TRANSISTOR	1	
Q657	2SB1238QRTV2	TRANSISTOR	1	
⚠ Q701	2SD2374PQAU	TRANSISTOR	1	
⚠ Q702	2SB1548PQAU	TRANSISTOR	1	
⚠ Q703	2SD2374PQAU	TRANSISTOR	1	
Q704	UN4211TA	TRANSISTOR	1	
Q705	2SA1995RSTA	TRANSISTOR	1	
⚠ Q707	2SB621AQRSTA	TRANSISTOR	1	
⚠ Q708	2SD2137PQTA	TRANSISTOR	1	
Q709	2SD2144STA	TRANSISTOR	1	
Q711	2SB1417PQTA	TRANSISTOR	1	
⚠ Q712	2SB1548PQAU	TRANSISTOR	1	
Q718	UN4111	TRANSISTOR	1	
Q719, 20	2SD1450STA	TRANSISTOR	2	
Q721	2SC3311AIQST	TRANSISTOR	1	
Q722	2SA1309AIRTA	TRANSISTOR	1	
⚠ Q723	2SC3940AQSTA	TRANSISTOR	1	
Q724	UN4211TA	TRANSISTOR	1	
⚠ Q725	2SC5398RSTA	TRANSISTOR	1	
Q801, 02	2SD1450STA	TRANSISTOR	2	
Q803, 04	UN4115TA	TRANSISTOR	2	
Q805, 06	2SD1450STA	TRANSISTOR	2	
Q807	UN4115TA	TRANSISTOR	1	
Q808-10	2SD1450STA	TRANSISTOR	3	
⚠ Q811	2SD2137PQTA	TRANSISTOR	1	
Q812, 13	UN4115TA	TRANSISTOR	2	
Q814	UN4211TA	TRANSISTOR	1	
Q815, 16	2SC3311AIQST	TRANSISTOR	2	
Q901	UN4214TA	TRANSISTOR	1	
Q902-04	2SC3311AIQST	TRANSISTOR	3	
Q906	UN411FTA	TRANSISTOR	1	
R102	ERDS2FJ472	1/4W 4.7K	1	
R103	ERDS2FJ101	1/4W 100	1	
R104	ERDS2FJ103	1/4W 10K	1	
R105	ERDS2TJ471T	1/4W 470	1	
R106	ERDS2FJ474	1/4W 470K	1	
R107	ERDS2TJ331T	1/4W 330	1	
R108	ERDS2FJ474	1/4W 470K	1	
R109	ERDS2TJ331T	1/4W 330	1	
R110	ERDS2FJ102	1/4W 1K	1	
R111	ERDS2TJ391T	1/4W 390	1	
R112	ERDS2FJ104	1/4W 100K	1	
R113	ERDS2FJ103	1/4W 10K	1	
R114	ERDS2TJ562	1/4W 5.6K	1	
R115	ERDS2TJ561T	1/4W 560	1	
R116	ERDS2FJ102	1/4W 1K	1	
R117	ERDS2TJ683T	1/4W 68K	1	
R118	ERDS2FJ472	1/4W 4.7K	1	
R119	ERDS2TJ103T	1/4W 10K	1	
R120	ERDS2TJ473T	1/4W 47K	1	
R121	ERDS2TJ223T	1/4W 22K	1	
R122	ERDS2FJ272	1/4W 2.7K	1	
R123	ERDS2TJ683T	1/4W 68K	1	
R124	ERDS2TJ271T	1/4W 270	1	
R125, 26	ERDS2TJ152T	1/4W 1.5K	2	
R127	ERDS2TJ471T	1/4W 470	1	
R128	ERDS2TJ820T	1/4W 82	1	
R129	ERDS2TJ273T	1/4W 27K	1	
R130	ERDS2FJ103	1/4W 10K	1	
R131	ERDS2FJ680	1/4W 68	1	
R132	ERDS2FJ103	1/4W 10K	1	
R133-37	ERDS2FJ102	1/4W 1K	5	
R138	ERDS2FJ103	1/4W 10K	1	
R139	ERDS2TJ332T	1/4W 3.3K	1	
R140	ERDS2FJ472	1/4W 4.7K	1	
R141, 42	ERDS2FJ102	1/4W 1K	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R143	ERDS2TJ223T	1/4W 22K	1	
R145, 46	ERDS2FJ104	1/4W 100K	2	
R151, 52	ERDS2TJ102T	1/4W 1K	2	(EG, EP)
R153, 54	ERDS2TJ104T	1/4W 100K	2	(EG, EP)
R155	ERDS2TJ121T	1/4W 120	1	(EG, EP)
R158, 59	ERDS2TJ102T	1/4W 1K	2	(EG, EP)
R201, 02	ERDS2FJ102	1/4W 1K	2	
R203, 04	ERDS2TJ473T	1/4W 47K	2	
R205, 06	ERDS2TJ331T	1/4W 330	2	
R207, 08	ERDS2TJ271T	1/4W 270	2	
R209, 10	ERDS2FJ184	1/4W 180K	2	
R211, 12	ERDS2TJ123T	1/4W 12K	2	
R213, 14	ERDS2FJ680	1/4W 68	2	
R215, 16	ERDS2FJ272	1/4W 2.7K	2	
R217, 18	ERDS2FJ392	1/4W 3.9K	2	
R221, 22	ERDS2FJ752	1/4W 7.5K	2	
R223, 24	ERDS2TJ562	1/4W 5.6K	2	
R225, 26	ERDS2FJ104	1/4W 100K	2	
R227, 28	ERDS2FJ222	1/4W 2.2K	2	
R229, 30	ERDS2FJ102	1/4W 1K	2	
R231, 32	ERDS2FJ103	1/4W 10K	2	
R233, 34	ERDS2FJ682	1/4W 6.8K	2	
R235, 36	ERDS2FJ102	1/4W 1K	2	
R239-42	ERDS2FJ102	1/4W 1K	4	
R243, 44	ERDS2TJ152T	1/4W 1.5K	2	
R245, 46	ERDS2TJ332T	1/4W 3.3K	2	
R249, 50	ERDS2FJ101	1/4W 100	2	
R251	ERDS2FJ222	1/4W 2.2K	1	
R252	ERDS2FJ103	1/4W 10K	1	
R253, 54	ERDS2FJ104	1/4W 100K	2	
R255, 56	ERDS2TJ123T	1/4W 12K	2	
R257, 58	ERDS2TJ562	1/4W 5.6K	2	
R301	ERDS2TJ223T	1/4W 22K	1	
R302	ERDS2FJ472	1/4W 4.7K	1	
R303, 04	ERDS2FJ222	1/4W 2.2K	2	
R305, 06	ERDS2FJ102	1/4W 1K	2	
R307, 08	ERDS2FJ104	1/4W 100K	2	
R309, 10	ERDS2FJ102	1/4W 1K	2	
R311, 12	ERDS2FJ104	1/4W 100K	2	
R313, 14	ERDS2TJ121T	1/4W 120	2	
R315	ERDS2FJ104	1/4W 100K	1	
R316	ERDS2FJ222	1/4W 2.2K	1	
R317	ERDS2FJ105	1/4W 1M	1	
R318	ERDS2TJ153T	1/4W 15K	1	
R323	ERDS2FJ272	1/4W 2.7K	1	
R324	ERDS2TJ223T	1/4W 22K	1	
R325	ERDS2FJ272	1/4W 2.7K	1	
R326	ERDS2TJ332T	1/4W 3.3K	1	
R327	ERDS2FJ392	1/4W 3.9K	1	
R328	ERDS2TJ332T	1/4W 3.3K	1	
R329	ERDS2FJ103	1/4W 10K	1	
R330	ERDS2TJ332T	1/4W 3.3K	1	
R331	ERDS2FJ102	1/4W 1K	1	
R332-34	ERDS2FJ222	1/4W 2.2K	3	
R335, 36	ERDS2TJ333T	1/4W 33K	2	
R338	ERDS2FJ392	1/4W 3.9K	1	
R341, 42	ERDS2FJ222	1/4W 2.2K	2	
R343	ERDS2TJ334T	1/4W 330K	1	
R344, 45	ERDS2FJ392	1/4W 3.9K	2	
R360	ERDS2TJ223T	1/4W 22K	1	
R364	ERDS2FJ103	1/4W 10K	1	
R365	ERDS2TJ223T	1/4W 22K	1	
R371, 72	ERDS2TJ100T	1/4W 10	2	
R380	ERDS2TJ153T	1/4W 15K	1	
R501, 02	ERDS2FJ102	1/4W 1K	2	
R503, 04	ERDS2TJ333T	1/4W 33K	2	
R505, 06	ERDS2TJ123T	1/4W 12K	2	
R507, 08	ERDS2TJ332T	1/4W 3.3K	2	
R509-12	ERDS2FJ101	1/4W 100	4	
⚠ R515	ERG1SJ182	1W 1.8K	1	
R551	ERDS2FJ183	1/4W 18K	1	
R552	ERDS2TJ473T	1/4W 47K	1	
R555	ERDS2TJ223T	1/4W 22K	1	
R556	ERDS2FJ104	1/4W 100K	1	
R557	ERDS2FJ103	1/4W 10K	1	

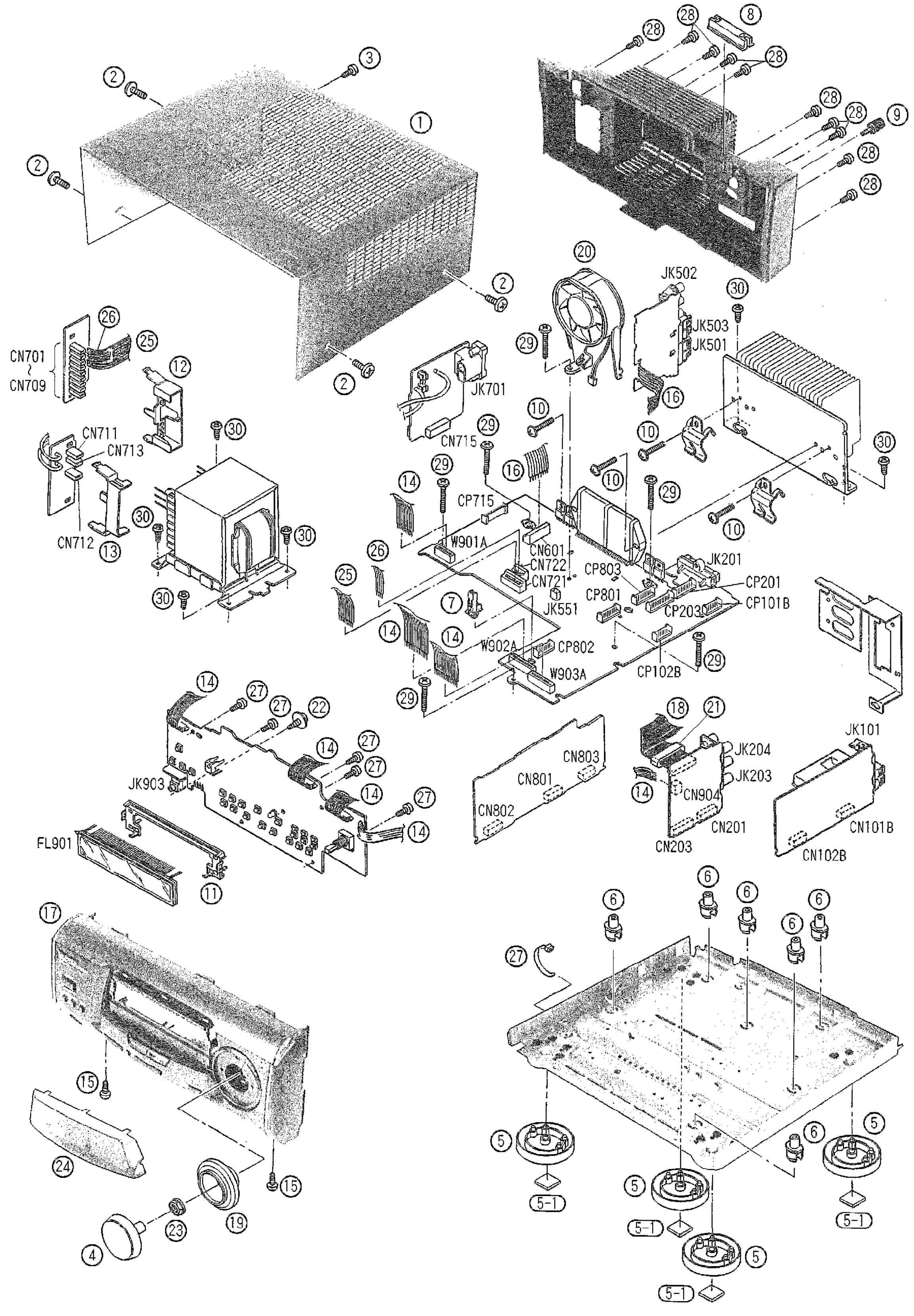
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R558	ERDS2FJ102	1/4W 1K	1	
R559	ERDS2FJ472	1/4W 4.7K	1	
R560,61	ERDS2FJ104	1/4W 100K	2	
R566	ERDS2TJ683T	1/4W 68K	1	
R567	ERG1SJ220	1W 22	1	
R568	ERDS2FJ101	1/4W 100	1	
R569	ERDS2FJ103	1/4W 10K	1	
R570	ERDS2TJ225T	1/4W 2.2M	1	
R591	ERDS2FJ472	1/4W 4.7K	1	
R604,05	ERDS2FJ682	1/4W 6.8K	2	
R613	ERDS2FJ104	1/4W 100K	1	
R614	ERDS2FJ124	1/4W 120K	1	
R615,16	ERDS2TJ182T	1/4W 1.8K	2	
R619,20	ERDS2TJ563T	1/4W 56K	2	
R621	ERDS2TJ273T	1/4W 27K	1	
R622	ERDS2TJ473T	1/4W 47K	1	
R623	ERDS2FJ474	1/4W 470K	1	
R624	ERDS2TJ223T	1/4W 22K	1	
R626	ERDS2TJ154T	1/4W 150K	1	
R627	ERDS2FJ124	1/4W 120K	1	
R628	ERDS2FJ184	1/4W 180K	1	
R629	ERDS2TJ683T	1/4W 68K	1	
R630	ERDS2TJ473T	1/4W 47K	1	
R631	ERDS2FJ224	1/4W 220K	1	
R632	EROS2TKF5362	1/4W 53.6K	1	
R633	EROS2TKG5622	1/4W 56.2K	1	
⚠ R634,35	ERDS1FJ272	1/2W 2.7K	2	
⚠ R636	ERDS1FJ561	1/2W 560	1	
R637	ERDS2TJ154T	1/4W 150K	1	
R638	ERDS2TJ684T	1/4W 680K	1	
⚠ R639-46	ERDS1FJ100	1/2W 10	8	
⚠ R647,48	ERD25FVJ2R2T	1/4W 2.2	2	
R649,50	ERDS2FJ103	1/4W 10K	2	
R651	ERDS2FJ272	1/4W 2.7K	1	
R652	ERDS2FJ393	1/4W 39K	1	
R653,54	ERDS2FJ272	1/4W 2.7K	2	
R655-58	ERDS2FJ183	1/4W 18K	4	
R659	ERDS2FJ222	1/4W 2.2K	1	
R663	ERDS2TJ154T	1/4W 150K	1	
R665	ERG1SJ682E	1W 6.8K	1	
R666	ERDS2FJ272	1/4W 2.7K	1	
R667	ERDS2TJ331T	1/4W 330	1	
R701,02	ERDS2TJ273T	1/4W 27K	2	
R703,04	ERDS2FJ101	1/4W 100	2	
⚠ R707	ERDS2FJ4R7	1/4W 4.7	1	
R708	ERDS2FJ472	1/4W 4.7K	1	
R712	ERDS2TJ152T	1/4W 1.5K	1	
R713,14	ERDS2TJ332T	1/4W 3.3K	2	
R715	ERDS2FJ183	1/4W 18K	1	
R717	ERDS2TJ473T	1/4W 47K	1	
R719	ERDS2TJ332T	1/4W 3.3K	1	
R720	ERDS2FJ272	1/4W 2.7K	1	
⚠ R721	ERD2FCJ4R7	1/4W 4.7	1	
⚠ R722	ERQ16NKW2R2E	1/6W 2.2	1	
R723	ERDS2TJ562	1/4W 5.6K	1	
R724	ERDS2FJ392	1/4W 3.9K	1	
R725	ERDS2TJ100T	1/4W 10	1	
R727	ERDS2FJ392	1/4W 3.9K	1	
R729	ERDS2TJ221T	1/4W 220	1	
⚠ R735	ERQ16NKW2R2E	1/6W 2.2	1	
R736	ERDS2FJ102	1/4W 1K	1	
R737	ERDS2TJ221T	1/4W 220	1	
R738	ERDS2FJ392	1/4W 3.9K	1	
R739	ERDS2TJ473T	1/4W 47K	1	
R748	ERDS2FJ102	1/4W 1K	1	
R749	ERDS2TJ271T	1/4W 270	1	
R751-54	ERDS2FJ4R7	1/4W 4.7	4	
⚠ R755	ERDS1FJ8R2	1/2W 8.2	1	
⚠ R756	ERDS1FJ4R7	1/2W 4.7	1	
R757-59	ERDS2FJ103	1/4W 10K	3	
R761,62	ERDS2TJ822T	1/4W 8.2K	2	
R763	ERDS2FJ472	1/4W 4.7K	1	
R764	ERDS2TJ331T	1/4W 330	1	
⚠ R765	ERDS1FJ561	1/2W 560	1	
R766	ERDS2FJ102	1/4W 1K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ R767	ERDS2FJ4R7	1/4W 4.7	1	
R768	ERDS2FJ101	1/4W 100	1	
⚠ R791,92	RSFMB30KT-L	PROTECTOR	2	
R801,02	ERDS2FJ393	1/4W 39K	2	
R803,04	ERDS2TJ153T	1/4W 15K	2	
R805	ERDS2TJ433T	1/4W 43K	1	
R806	ERDS2TJ333T	1/4W 33K	1	
R807	ERDS2TJ153T	1/4W 15K	1	
R808	ERDS2FJ104	1/4W 100K	1	
R809,10	ERDS2TJ223T	1/4W 22K	2	
R811	ERDS2FJ103	1/4W 10K	1	
R812	ERDS2TJ153T	1/4W 15K	1	
R813,14	ERDS2TJ223T	1/4W 22K	2	
R815,16	ERDS2TJ473T	1/4W 47K	2	
R817	ERDS2TJ332T	1/4W 3.3K	1	
R818	ERDS2TJ153T	1/4W 15K	1	
R819	ERDS2FJ393	1/4W 39K	1	
R820	ERDS2TJ274T	1/4W 270K	1	
R821	ERDS2TJ822T	1/4W 8.2K	1	
R822	ERDS2FJ102	1/4W 1K	1	
R823	ERDS2FJ105	1/4W 1M	1	
R824	ERDS2FJ823	1/4W 82K	1	
R825-27	ERDS2TJ332T	1/4W 3.3K	3	
R828	ERDS2FJ823	1/4W 82K	1	
R829,30	ERDS2TJ223T	1/4W 22K	2	
R831	ERDS2FJ392	1/4W 3.9K	1	
R832	ERDS2TJ182T	1/4W 1.8K	1	
R833,34	ERDS2FJ104	1/4W 100K	2	
R835,36	ERDS2FJ222	1/4W 2.2K	2	
R837,38	ERDS2TJ332T	1/4W 3.3K	2	
R839,40	ERDS2FJ102	1/4W 1K	2	
R841	ERDS2FJ103	1/4W 10K	1	
R842	ERDS2FJ104	1/4W 100K	1	
R843,44	ERDS2FJ222	1/4W 2.2K	2	
R845	ERDS2FJ104	1/4W 100K	1	
R846	ERDS2TJ122T	1/4W 1.2K	1	
R847,48	ERDS2FJ472	1/4W 4.7K	2	
R849	ERDS2TJ122T	1/4W 1.2K	1	
R850	ERDS2FJ222	1/4W 2.2K	1	
R851	ERDS2TJ473T	1/4W 47K	1	
R852	ERDS2FJ393	1/4W 39K	1	
R853	ERDS2TJ473T	1/4W 47K	1	
R854	ERDS2FJ393	1/4W 39K	1	
R855	ERDS2FJ104	1/4W 100K	1	
R856,57	ERDS2TJ123T	1/4W 12K	2	
R859,60	ERDS2TJ121T	1/4W 120	2	
R861	ERDS2FJ105	1/4W 1M	1	
R862	ERDS2FJ472	1/4W 4.7K	1	
R863,64	ERDS2FJ105	1/4W 1M	2	
R865	ERDS2FJ102	1/4W 1K	1	
R866,67	ERDS2FJ222	1/4W 2.2K	2	
R868-70	ERDS2FJ102	1/4W 1K	3	
R871,72	ERDS2FJ105	1/4W 1M	2	
⚠ R873	ERD2FCJ4R7	1/4W 4.7	1	
R874	ERDS2FJ104	1/4W 100K	1	
R875	ERDS2FJ102	1/4W 1K	1	
R876	ERDS2FJ224	1/4W 220K	1	
R877,78	ERDS2FJ472	1/4W 4.7K	2	
R879	ERDS2TJ562	1/4W 5.6K	1	
R880,81	ERDS2TJ221T	1/4W 220	2	
R883,84	ERDS2TJ563T	1/4W 56K	2	
R885,86	ERDS2TJ332T	1/4W 3.3K	2	
R887,88	ERDS2FJ222	1/4W 2.2K	2	
R889	ERDS2TJ152T	1/4W 1.5K	1	
R891	ERDS2TJ331T	1/4W 330	1	
R893	ERDS2FJ103	1/4W 10K	1	
R894	ERDS2TJ153T	1/4W 15K	1	
R901	ERDS2TJ821T	1/4W 820	1	
R902	ERDS2FJ102	1/4W 1K	1	
R903	ERDS2TJ122T	1/4W 1.2K	1	
R904	ERDS2TJ152T	1/4W 1.5K	1	
R905	ERDS2TJ182T	1/4W 1.8K	1	
R906	ERDS2FJ222	1/4W 2.2K	1	
R907	ERDS2FJ272	1/4W 2.7K	1	
R908	ERDS2FJ472	1/4W 4.7K	1	

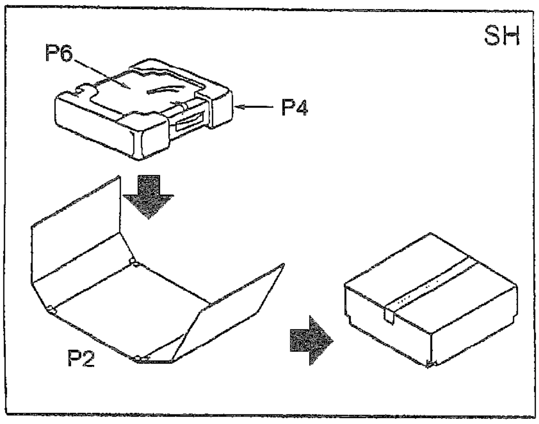
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R909	ERDS2FJ682	1/4W 6.8K	1	
R910	ERDS2TJ123T	1/4W 12K	1	
R911	ERDS2TJ223T	1/4W 22K	1	
R912	ERDS2TJ821T	1/4W 820	1	(EG, EP)
R913	ERDS2TJ102T	1/4W 1K	1	(EG, EP)
R914	ERDS2TJ122T	1/4W 1.2K	1	(EG, EP)
R915	ERDS2TJ152T	1/4W 1.5K	1	(EG, EP)
R919-23	ERDS2FJ103	1/4W 10K	5	
R924-27	ERDS2FJ102	1/4W 1K	4	
R929	ERDS2FJ102	1/4W 1K	1	
R930	ERDS2FJ101	1/4W 100	1	
R931-36	ERDS2FJ102	1/4W 1K	6	
R937	ERDS2TJ562	1/4W 5.6K	1	
R938	ERDS2FJ102	1/4W 1K	1	
R939	ERDS2TJ152T	1/4W 1.5K	1	
R940, 41	ERDS2FJ102	1/4W 1K	2	
R942	ERDS2FJ101	1/4W 100	1	
R944	ERDS2TJ223T	1/4W 22K	1	
R946	ERDS2FJ102	1/4W 1K	1	
R947, 48	ERDS2FJ104	1/4W 100K	2	(E, EB)
R949	ERDS2FJ472	1/4W 4.7K	1	
R950	ERDS2FJ101	1/4W 100	1	
R951	ERDS2TJ334T	1/4W 330K	1	
R952	ERDS2TJ106T	1/4W 10M	1	
R953	ERDS2FJ101	1/4W 100	1	
R954	ERDS2FJ104	1/4W 100K	1	
R955	ERDS2TJ824T	1/4W 820K	1	
R956-58	ERDS2FJ102	1/4W 1K	3	
R959	ERDS2TJ471T	1/4W 470	1	
R960	ERDS2TJ152T	1/4W 1.5K	1	
R961, 62	ERDS2TJ223T	1/4W 22K	2	
R963, 64	ERDS2FJ103	1/4W 10K	2	
R965	ERDS2FJ472	1/4W 4.7K	1	
R966	ERDS2FJ103	1/4W 10K	1	
R967	ERDS2TJ473T	1/4W 47K	1	
R968	ERDS2FJ103	1/4W 10K	1	
R969, 70	ERDS2FJ472	1/4W 4.7K	2	
R971	ERDS2TJ473T	1/4W 47K	1	
R972	ERDS2TJ223T	1/4W 22K	1	
R974	ERDS2FJ101	1/4W 100	1	
R976	ERDS2TJ223T	1/4W 22K	1	
R977-81	ERDS2FJ104	1/4W 100K	5	
R984, 85	ERDS2TJ473T	1/4W 47K	2	
R986-88	ERDS2FJ102	1/4W 1K	3	
R989, 90	ERDS2FJ393	1/4W 39K	2	
R991	ERDS2TJ473T	1/4W 47K	1	
R992	ERDS2FJ181	1/4W 180	1	
R993, 94	ERDS2FJ104	1/4W 100K	2	
R995	ERDS2FJ181	1/4W 180	1	
R996, 97	ERDS2TJ151T	1/4W 150	2	
⚠ RL701	RSY0030-C	RELAY	1	
S901-12	EVQPTD05Q	SW	12	
S913, 14	EVQ21405R	SW	2	(EG, EP)
⚠ T501	RTP2N5B010	POWER TRANSFORMER	1	
VR901	EVQVBXFK124B	V.R.	1	
X102	RLFDFT13DD	OSCILLATOR	1	
X103	RSXC7M20S05T	OSCILLATOR	1	
X151	RSXC4M33S02T	OSCILLATOR	1	(EG, EP)
X801	RSXY8M00M06T	OSCILLATOR	1	
X901	EF0EC6004T4	OSCILLATOR	1	
X902	RSXD32K7S02	OSCILLATOR	1	
Z101	RLA2Z003M-T	COMPONENT COMBINATION	1	
Z102	RLI2Z006M-T	COMPONENT COMBINATION	1	
Z120	RAL0035	FM FRONT END	1	
Z901	RCDGP1U28XD	REMOTE SENSOR	1	

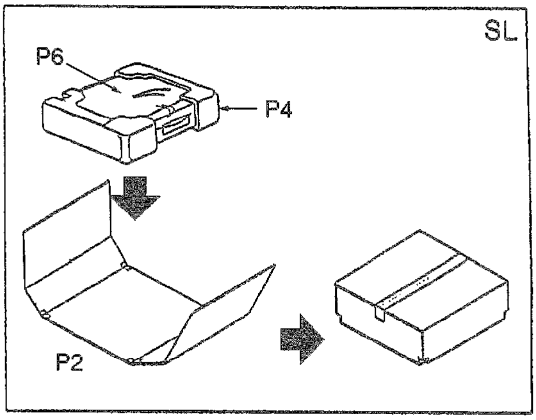
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

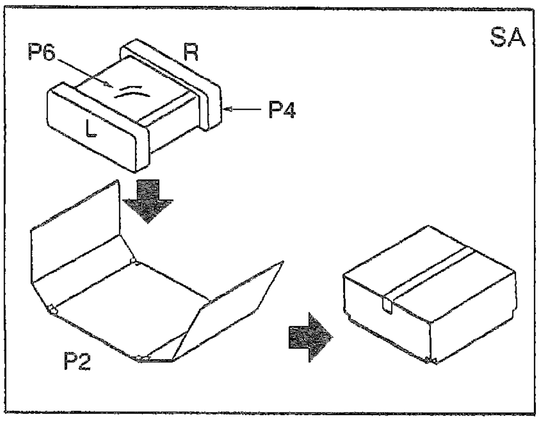
Cabinet Parts Location

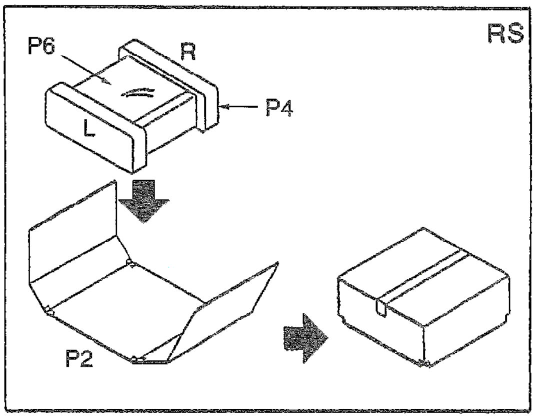

③
②
①
②
②
②
㉘
㉘
⑧
㉘
㉘
㉘
⑨
㉘
㉘
⑳
JK502
㉚
JK503
JK501
㉖
㉕
CN701
~
CN709
⑫
㉙
JK701
⑩
⑯
CN711
CN713
㉚
CN715
㉙
⑯
⑩
⑩
㉚
㉙
⑭
㉙
CP715
⑩
㉚
㉚
CN712
⑬
W901A
㉖
CN601
CN722
CN721
CP803
JK201
CP201
CP101B
㉚
㉕
⑦
JK551
CP801
CP203
⑭
⑭
W902A
CP802
W903A
CP102B
㉙
㉙
⑭
㉗
㉗
㉒
⑱
㉑
JK101
JK204
JK203
⑭
㉗
㉗
CN803
CN801
CN904
JK903
⑭
㉗
⑭
CN802
CN201
CN101B
CN203
CN102B
FL901
⑪
⑥
⑥
⑥
⑥
⑥
⑰
㉗
⑮
⑥
⑤
⑤
⑤
㉔
⑮
5-1
5-1
⑤
⑤
④
㉓
⑲
5-1
5-1

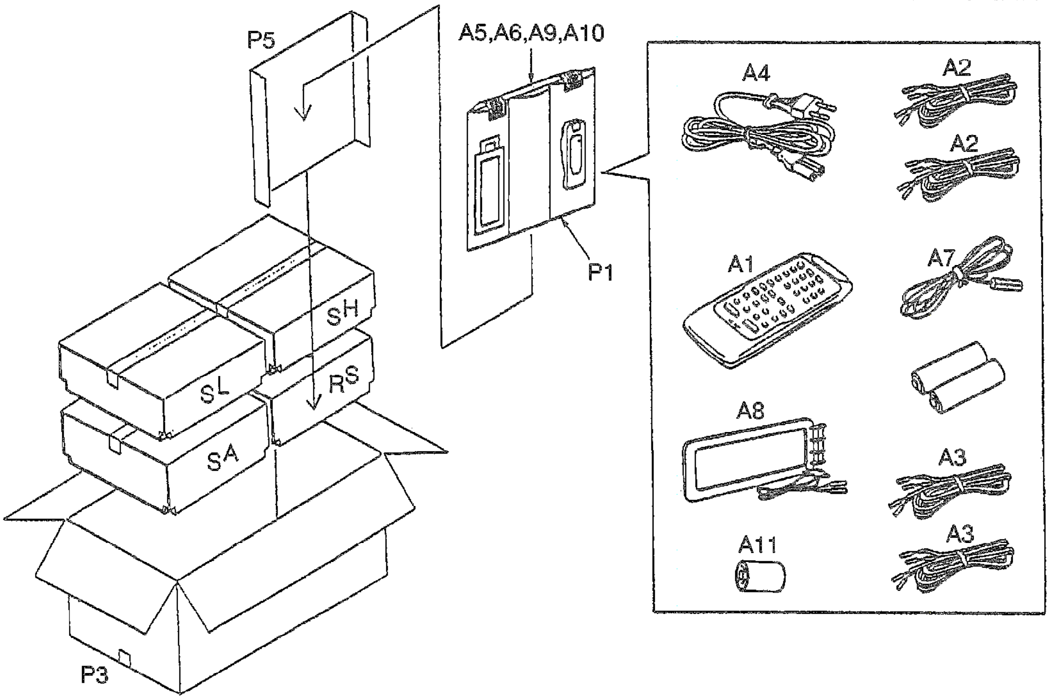
Packaging






SA
P6
R
P4
L
P2


RS
P6
R
P4
L
P2


P5
A5,A6,A9,A10
P1
SH
SL
RS
SA
P3
A4
A2
A2
A1
A7
A8
A3
A11
A3

Printed in Japan
F980206000HS/KH

ORDER NO. AD9802021C2

Service Manual

Sound Processor

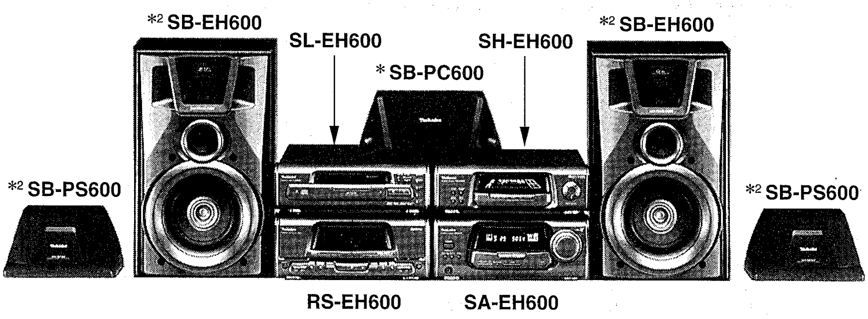
Sound Processor

SH-EH600

DOLBY SURROUND
PRO·LOGIC

Colour
(H) .... Gray Type

Area
(E) .... Europe.



System	**SC-EH600**
Sound Processor	**SH-EH600**
Tuner / Amplifier	SA-EH600
CD Changer	SL-EH600
Cassette Deck	RS-EH600
Front Speakers*2	SB-EH600
Center Speaker*2	SB-PC600
Surround Speakers*2	SB-PS600

* : Made in PAES

Because of unique interconnecting cables, when a component requires service, send or bring in the entire system.

Specifications

EQ/SFP Section

MANUAL GEQ:	
Center frequency;	100 Hz, 315 Hz, 1 kHz, 3.15 kHz, 10 kHz
Level control;	± 3, ± 6, ± 9 dB
EQ SPACE mode	
3 modes;	HALL, CLEAR, HEAVY
Acoustic Image Selector:	36 pattern

Pre-amplifier Section

Input sensitivity/impedance:	
VCR;	250 mV/15 kΩ
VDP;	250 mV/15 kΩ
Output level:	

DOLBY PRO LOGIC Section

PRO LOGIC mode:	SURROUND, 3 STEREO
CENTER mode:	NORMAL, WIDE, PHANTOM
DELAY TIME:	20 ms (Fixed)

Spectrum analizer Section

Display mode:	NORMAL, PEAKHOLD, AURORA

General

Dimensions:	287 (W) × 89 (H) × 273.5 (D) mm
Weight:	1.1 kg

Note: Specifications are subject to change without notice.
Weight and dimensions are approximate.

Manufactured under license from Dolby Laboratories Licensing Corporation.
DOLBY, the double-D symbol DD and "PRO LOGIC" are trademarks of Dolby Laboratories Licensing Corporation.

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Technics®

© 1998 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

■ Contents

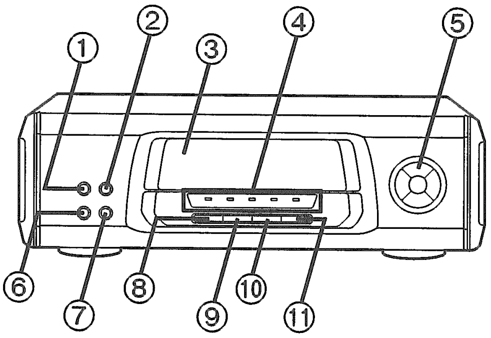
Page
Location of Controls 2
Operation Checks and
Main Component Replacement Procedures 3, 4
To Supply Power Source 5
To check signals 5
Schematic Diagram .... 6 ~ 8
Printed Circuit Board Diagram 9

Page
Type Illustration of IC's, Transistors and Diodes 10
Wiring Connection Diagram 10
Terminal Function of IC's 11
Block Diagram 12
Replacement Parts List 13, 14
Cabinet Parts Location 14

NOTE:

Refer to the service manual for Model No. SA-EH600 for information on "Accessories", "Connections", "Installation", "Operations" and "Packaging".

■ Location of Controls



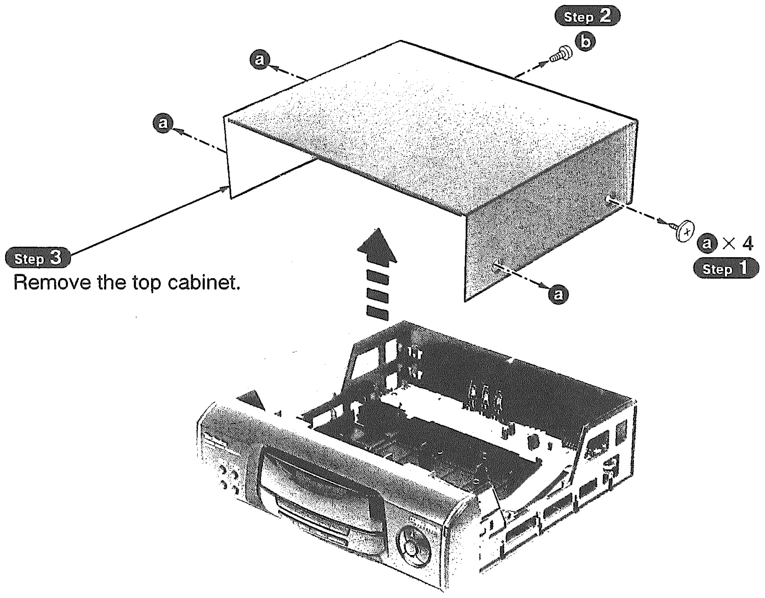
① EQ SPACE on/flat button (EQ SPACE ON/FLAT)
② Display mode select/demonstration button (DISP MODE/-DEMO)
③ Display
④ DOLBY PRO LOGIC indicators (SURROUND, 3 STEREO, NORMAL, WIDE, PHANTOM)
⑤ Multi control buttons (MULTI CONTROL, ▶, ▲, ◀, ▼)
⑥ Acoustic image EQ button (ACOUSTIC IMAGE EQ)
⑦ EQ SPACE preset/manual select button (PRESET/MANUAL)
⑧ DOLBY PRO LOGIC on/off button (DOLBY PRO LOGIC, OFF/ON)
⑨ DOLBY PRO LOGIC mode select button (MODE)
⑩ DOLBY PRO LOGIC test signal button (TEST)
⑪ DOLBY PRO LOGIC center mode button (CENTER MODE)

Operation Checks and Main Component Replacement Procedures

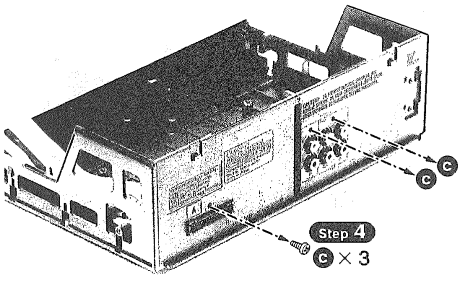
NOTE

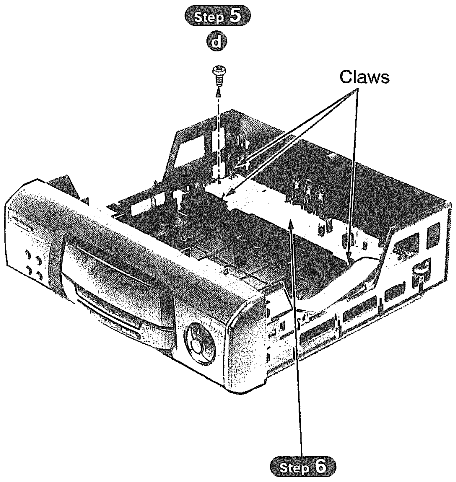
1. **This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.**
2. **For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.**

1. Checking for the IN/OUT terminal P.C.B.


Step 2
b
a
a
Step 3
a × 4
Step 1
a

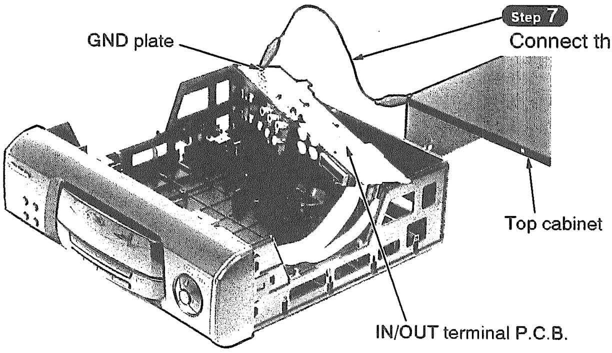
Step 3 Remove the top cabinet.




Step 5
d
Claws
Step 6

Release the 3 claws, and then remove the IN/OUT terminal P.C.B..

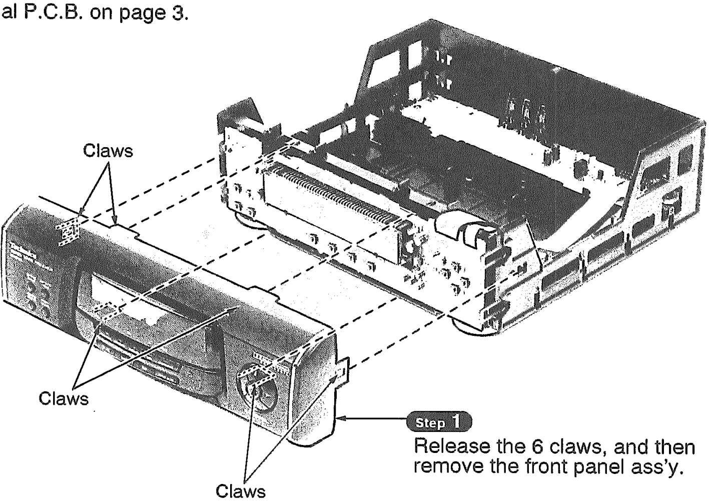
- **Check the IN/OUT terminal P.C.B. as shown below.**


GND plate
Top cabinet
IN/OUT terminal P.C.B.

Step 7
Connect the lead wire.

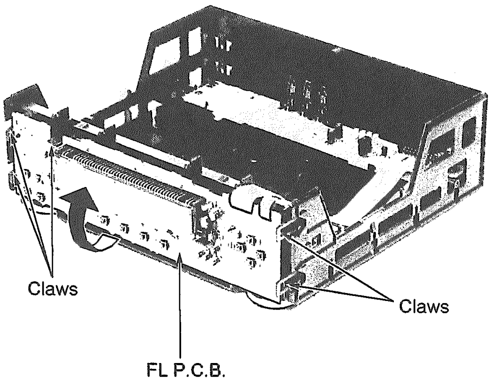
2. Checking for the FL P.C.B.

- Follow the Step 1 ~ Step 3 of the item 1 in checking for the IN/OUT terminal P.C.B. on page 3.

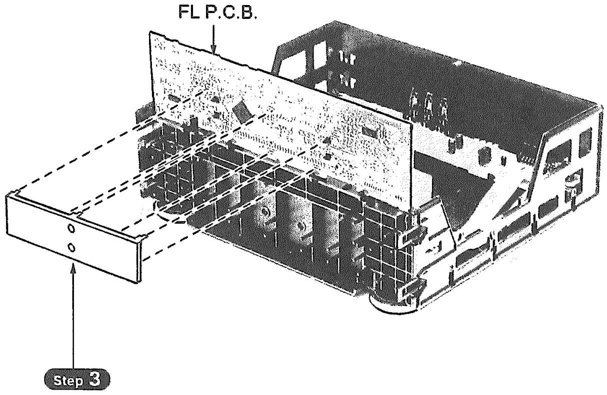

Claws
Claws
Claws

Step 1
Release the 6 claws, and then remove the front panel ass'y.

Step 2
Release the 5 claws, and then remove the FL P.C.B..


Claws
Claws
FL P.C.B.

- **Check the FL P.C.B. as shown below.**



Step 3
Unsolder the shield plate terminals.
(6 points)

■ To Supply Power Source

This unit SH-EH600 is designed to operate on power supplied from the system connected. (For system connection, refer to Fig.1)

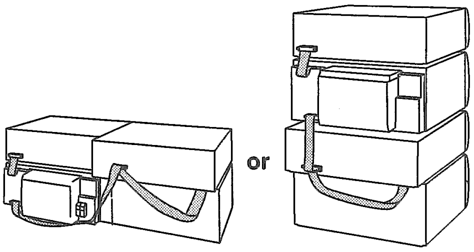
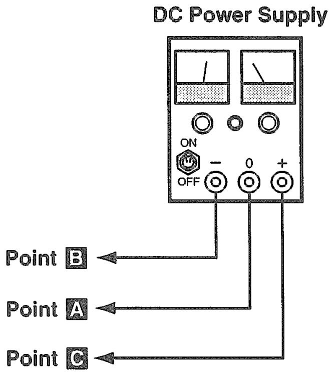
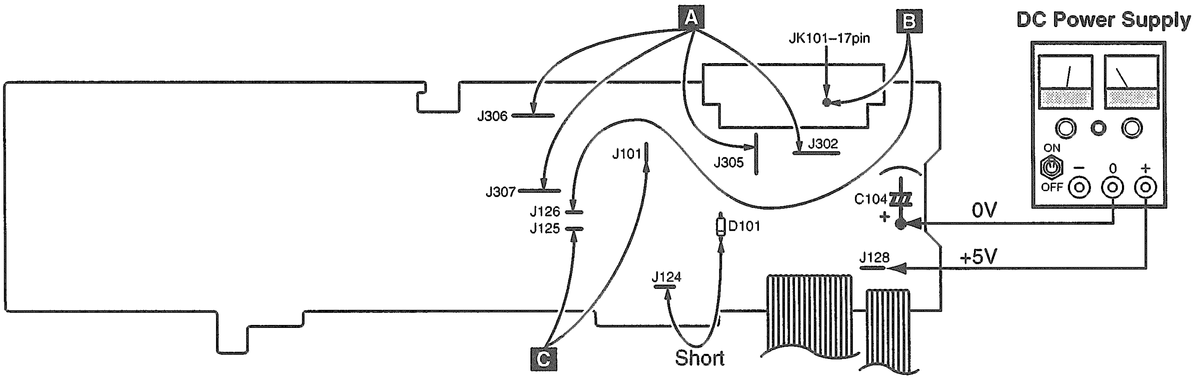


Fig. 1

When you have to test and service the unit SH-EH600 alone, use the following method to supply power source and operate the unit:

1. Short the section between **J124** and **D101**.
2. Short the section **J306, J307, J305** and **J302** with each other. (Point A)
3. Short the section between **J126** and **17 pin** of the connector **JK101**. (Point B)
4. Short the section between **J125** and **J101**. (Point C)
5. Apply +5 V DC power to the section between **J128** and (+) **foil side** of **C104**.
6. Connect the DC power supply as shown below.
   - +12 V terminal of the DC Power Supply connect to Point C .
   - GND terminal of the DC Power Supply connect to Point A .
   - −12 V terminal of the DC Power Supply connect to Point B .

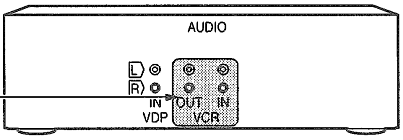

DC Power Supply
ON
OFF
−
0
+
Point B
Point A
Point C


A
B
C
JK101−17pin
J306
J307
J101
J305
J302
J126
J125
D101
J124
C104
+
J128
Short
0V
+5V
DC Power Supply
ON
OFF
−
0
+

■ To Check Signals

Input the audio signal and confirm in to be outputted from the terminal.

	INPUT	OUTPUT
L-ch	AUDIO IN	AUDIO OUT
R-ch	VCR	VCR


AUDIO
L
R
IN
VDP
OUT
IN
VCR

■Schematic Diagram

Page
A **FL CIRCUIT** 7, 8
B **IN/OUT TERMINAL CIRCUIT** 8

- This schematic diagram may be modified at any time with the development of new technology.

Notes:

- **S301**: EQ SPACE on/off switch (EQ SPACE ON/FLAT)
- **S302**: Acoustic image EQ switch (ACOUSTIC IMAGE EQ)
- **S303**: EQ SPACE preset/manual select switch (PRESET/MANUAL)
- **S304**: Display mode select/demonstration switch (DISP MODE/–DEMO)
- **S305**: DOLBY PRO LOGIC on/off switch (OFF/ON)
- **S306**: DOLBY PRO LOGIC mode select switch (MODE)
- **S307**: DOLBY PRO LOGIC test signal switch (TEST)
- **S308**: DOLBY PRO LOGIC center mode select switch (CENTER MODE)
- **S310 ~ S313** : Multi control switch
  (MULTI CONTROL , S310 : ▼ , S311 : ◀ , S312 : ▲ , S313 : ▶)

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

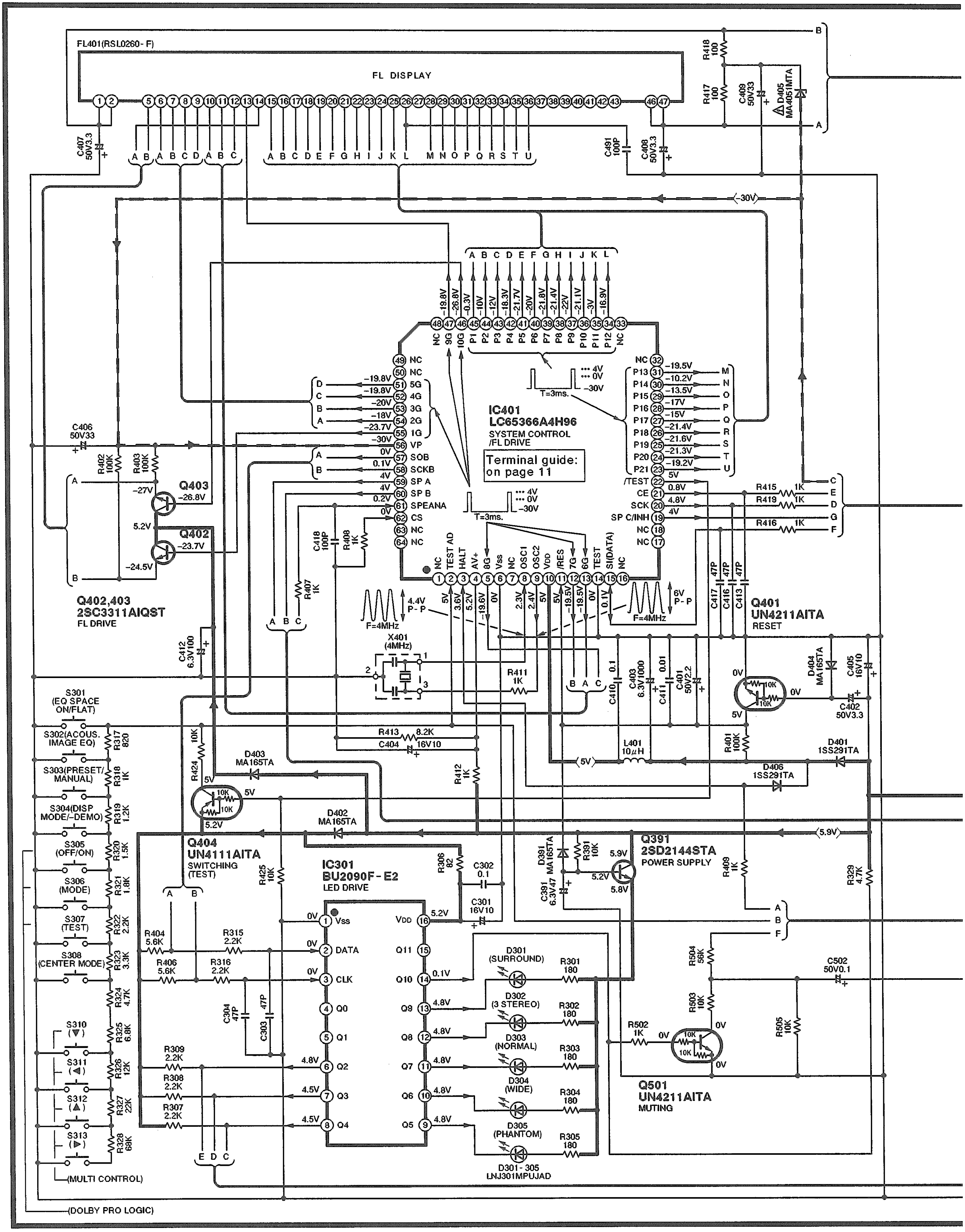
- Voltage values and waveforms are measured as indicated in the schematic diagram when test points between **DG** and **CT-G** , and between **AG** and **DG** are shorted.

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety.
  Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
  When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- **Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care during repair.
  Cover the parts boxes made of plastics with aluminum foil.
  Ground the soldering iron.
  Put a conductive mat on the work table.
  Do not touch the legs of IC or LSI with the fingers directly.

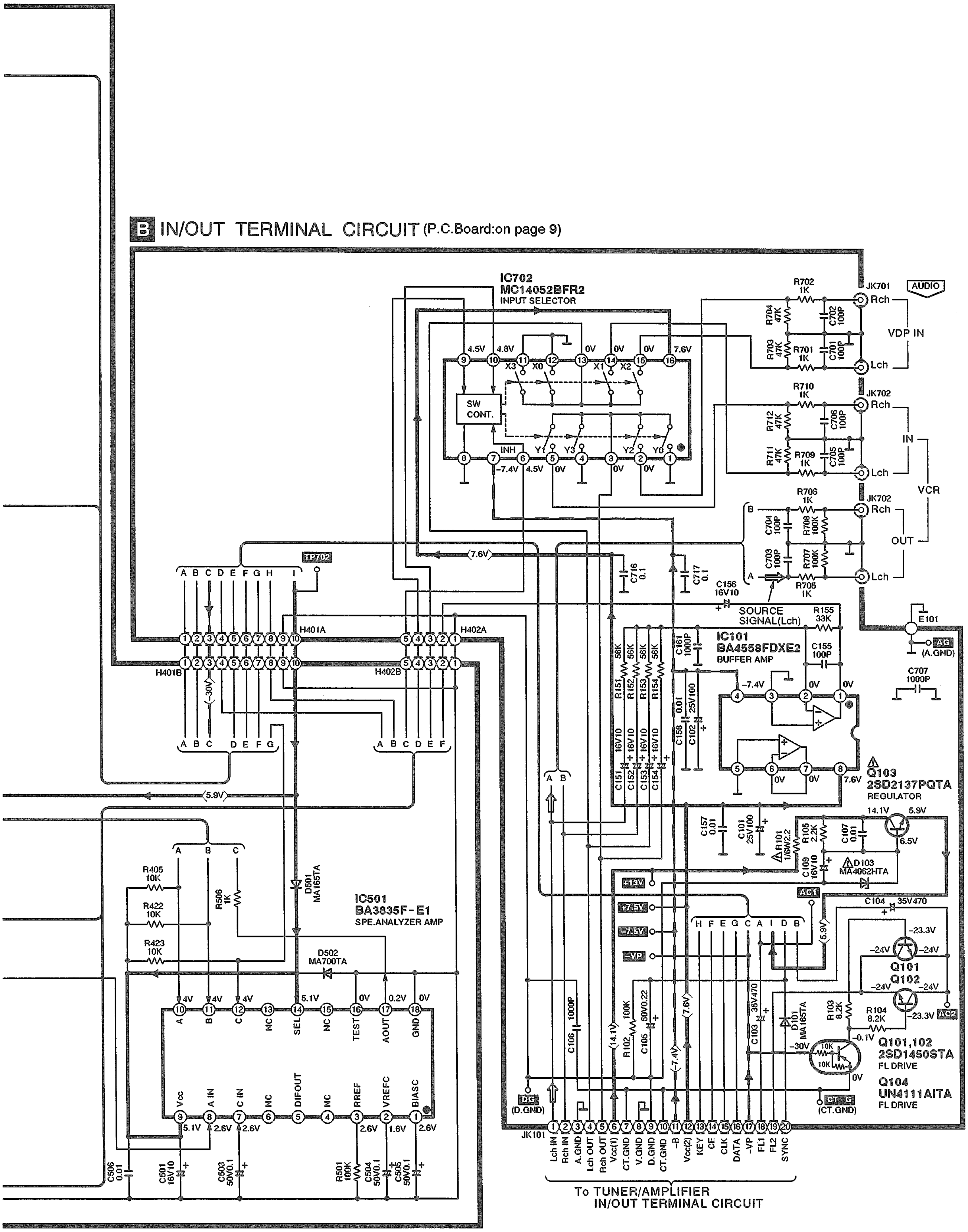
- **Voltage and signal line**
  ━▶━ : Positive voltage line
  ■■▶■■ : Negative voltage line
  ⇨ : Source signal line (L-ch)

A FL CIRCUIT (P.C.Board:on page 9)


FL401(RSL0260-F)
FL DISPLAY
C407 50V3.3
C491 100P
C408 50V3.3
R418 100
R417 100
C409 50V33
D405 MA4051MTA
(-30V)
IC401
LC65366A4H96
SYSTEM CONTROL
/FL DRIVE
Terminal guide: on page 11
T=3ms.
C406 50V33
R402 100K
R403 100K
Q403
Q402
Q402,403
2SC3311AIQST
FL DRIVE
-27V
-26.8V
5.2V
-23.7V
-24.5V
C412 6.3V100
C418 100P
R408 1K
R407 1K
X401 (4MHz)
F=4MHz
4.4V P-P
6V P-P
R411 1K
C410 0.1
C403 6.3V1000
C411 0.01
C401 50V2.2
R415 1K
R419 1K
R416 1K
C417 47P
C416 47P
C413 47P
Q401
UN4211AITA
RESET
D404 MA165TA
C405 16V10
C402 50V3.3
R401 100K
D401 1SS291TA
D406 1SS291TA
L401 10μH
(5V)
(5.9V)
R413 8.2K
C404 16V10
R412 1K
S301 (EQ SPACE ON/FLAT)
S302(ACOUS. IMAGE EQ)
R317 820
S303(PRESET/ MANUAL)
R318 1K
S304(DISP MODE/-DEMO)
R319 1.2K
S305 (OFF/ON)
R320 1.5K
S306 (MODE)
R321 1.8K
S307 (TEST)
R322 2.2K
S308 (CENTER MODE)
R323 3.3K
R324 4.7K
S310 (▼)
R325 6.8K
S311 (◀)
R326 12K
S312 (▲)
R327 22K
S313 (▶)
R328 68K
(MULTI CONTROL)
(DOLBY PRO LOGIC)
R424 10K
D403 MA165TA
D402 MA165TA
Q404
UN4111AITA
SWITCHING (TEST)
R425 10K
IC301
BU2090F-E2
LED DRIVE
R306 82
C302 0.1
C301 16V10
R404 5.6K
R315 2.2K
R406 5.6K
R316 2.2K
C304 47P
C303 47P
R309 2.2K
R308 2.2K
R307 2.2K
Vss
DATA
CLK
Q0
Q1
Q2
Q3
Q4
VDD
Q11
Q10
Q9
Q8
Q7
Q6
Q5
D301 (SURROUND)
D302 (3 STEREO)
D303 (NORMAL)
D304 (WIDE)
D305 (PHANTOM)
R301 180
R302 180
R303 180
R304 180
R305 180
D301-305
LNJ301MPUJAD
D391 MA165TA
R391 10K
C391 6.3V47
Q391
2SD2144STA
POWER SUPPLY
5.9V
5.2V
5.8V
R409 1K
R329 4.7K
R504 56K
R503 10K
R505 10K
C502 50V0.1
R502 1K
Q501
UN4211AITA
MUTING

→ : Positive voltage line ▪▪▶▪▪ : Negative voltage line ⇨ : Source signal line (L-ch)

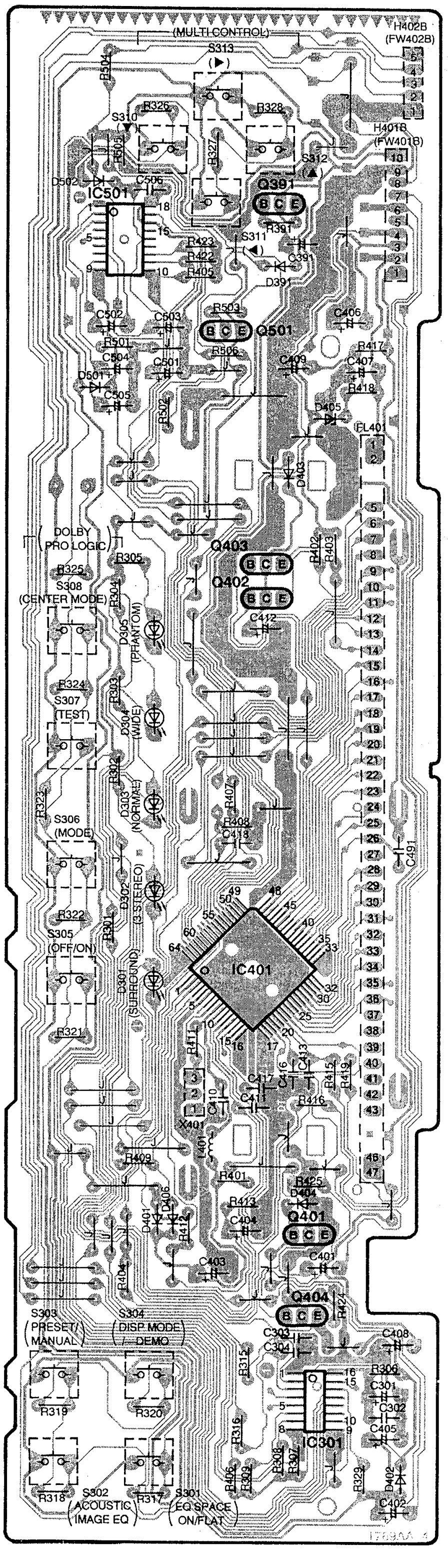
B IN/OUT TERMINAL CIRCUIT (P.C.Board:on page 9)


IC702
MC14052BFR2
INPUT SELECTOR
SW CONT.
INH
X3 X0 X1 X2
Y1 Y3 Y2 Y0
4.5V 4.8V 0V 0V 0V 7.6V
-7.4V 4.5V 0V 0V 0V
JK701 AUDIO
Rch Lch
VDP IN
R702 1K
R704 47K
C702 100P
R703 47K
R701 1K
C701 100P
JK702
R710 1K
R712 47K
C706 100P
R711 47K
R709 1K
C705 100P
IN
VCR
R706 1K
C704 100P
R708 100K
OUT
C703 100P
R707 100K
R705 1K
C716 0.1
C717 0.1
C156 16V10
SOURCE SIGNAL(Lch)
R155 33K
E101
AG (A.GND)
C707 1000P
TP702
H401A H401B H402A H402B
IC101
BA4558FDXE2
BUFFER AMP
C155 100P
R151 56K R152 56K R153 56K R154 56K
C161 1000P
C158 0.01
C102 25V100
C151 16V10 C152 16V10 C153 16V10 C154 16V10
Q103
2SD2137PQTA
REGULATOR
14.1V 5.9V 6.5V
C157 0.01
C101 25V100
R101 1/6W2.2
R105 2.2K
C107 0.01
C109 16V10
D103 MA4062HTA
+13V +7.5V -7.5V -VP
AC1 AC2
C104 35V470
-23.3V -24V -24V -24V
Q101 Q102
R103 8.2K
R104 8.2K
-0.1V -30V
Q101,102
2SD1450STA
FL DRIVE
Q104
UN4111AITA
FL DRIVE
CT-G (CT.GND)
DG (D.GND)
C106 1000P
R102 100K
C105 50V0.22
C103 35V470
D101 MA165TA
(14.1V) (7.6V) (-7.4V) (7.6V) (5.9V) (-30V)
JK101
Lch IN Rch IN A.GND Lch OUT Rch OUT Vcc(1) CT.GND V.GND D.GND CT.GND -B Vcc(2) KEY CE CLK DATA -VP FL1 FL2 SYNC
To TUNER/AMPLIFIER IN/OUT TERMINAL CIRCUIT
IC501
BA3835F-E1
SPE.ANALYZER AMP
R405 10K
R422 10K
R423 10K
R506 1K
D501 MA165TA
D502 MA700TA
A B SEL TEST AOUT GND NC
Vcc A IN C IN NC DIFOUT NC RREF VREFC BIASC
4V 4V 4V 5.1V 0V 0.2V 0V
5.1V 2.6V 2.6V 2.6V 1.6V 2.6V
C506 0.01
C501 16V10
C503 50V0.1
R501 100K
C504 50V0.1
C505 50V0.1

■ Printed Circuit Board Diagram

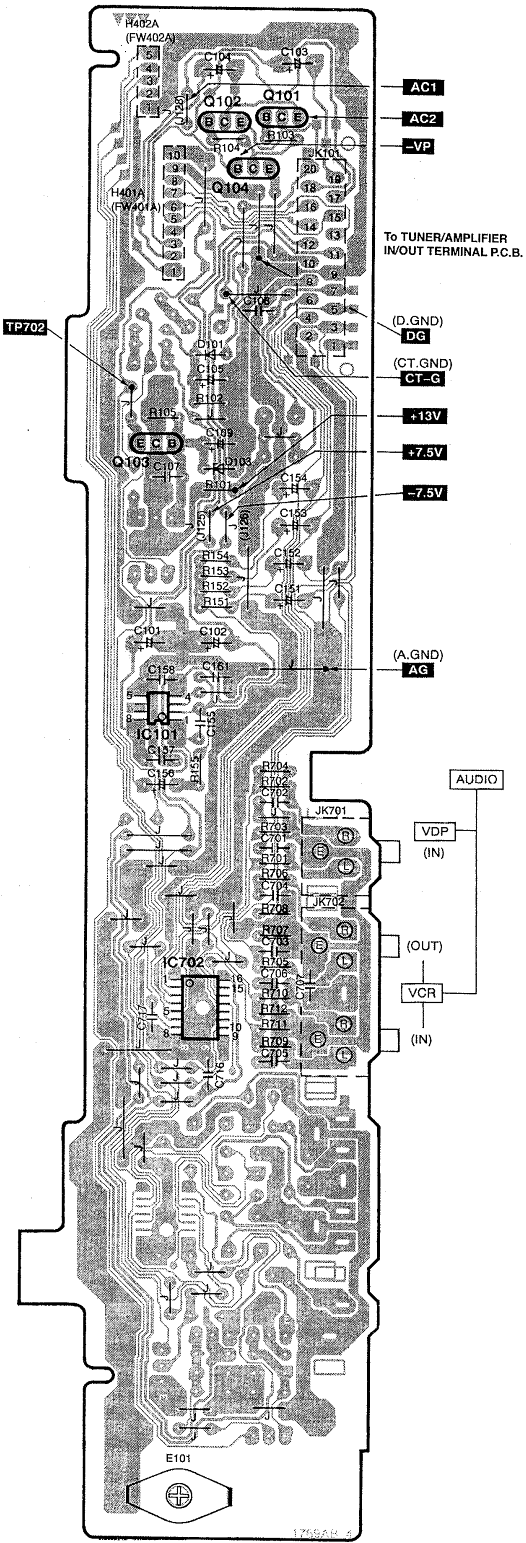
- This circuit board diagram may be modified at any time with the development of new technology.

A FL P.C.B.


H402B
(FW402B)
(MULTI CONTROL)
S313
(▶)
S310
R326
R328
R327
H401B
(FW401B)
S312
(▲)
Q391
R391
S311
(◀)
C391
D391
D502
C506
IC501
R503
R423
R422
R405
C502
C503
R503
Q501
C406
R501
C504
C501
R506
C409
R417
C407
R418
D501
C505
R502
D405
FL401
D403
DOLBY
PRO LOGIC
R305
R325
S308
(CENTER MODE)
R304
D305
(PHANTOM)
Q403
Q402
R402
R403
C412
R324
S307
(TEST)
R303
D304
(WIDE)
R323
S306
(MODE)
R302
D303
(NORMAL)
R407
R408
C418
C491
R322
S305
(OFF/ON)
R301
D302
(3 STEREO)
D301
(SURROUND)
IC401
R321
R411
C417
C416
C413
R415
R419
R416
C410
C411
X401
L401
R409
R401
R425
D404
R413
C404
Q401
D401
D406
R412
R404
C403
C401
Q404
R421
S303
(PRESET/MANUAL)
S304
(DISP MODE/DEMO)
C303
C304
C408
R315
R306
C301
C302
C405
IC301
R319
R320
R316
R308
R307
R406
R309
R322
D402
C402
R318
S302
(ACOUSTIC IMAGE EQ)
R317
S301
(EQ SPACE ON/FLAT)

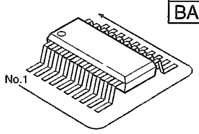
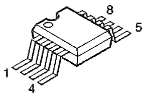
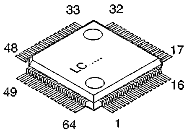
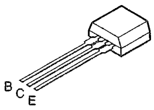
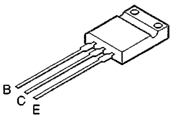
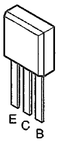
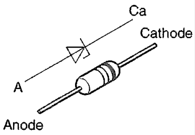
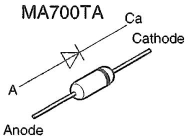
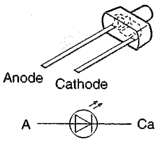
(REP2474F-M)

B IN/OUT TERMINAL P.C.B.

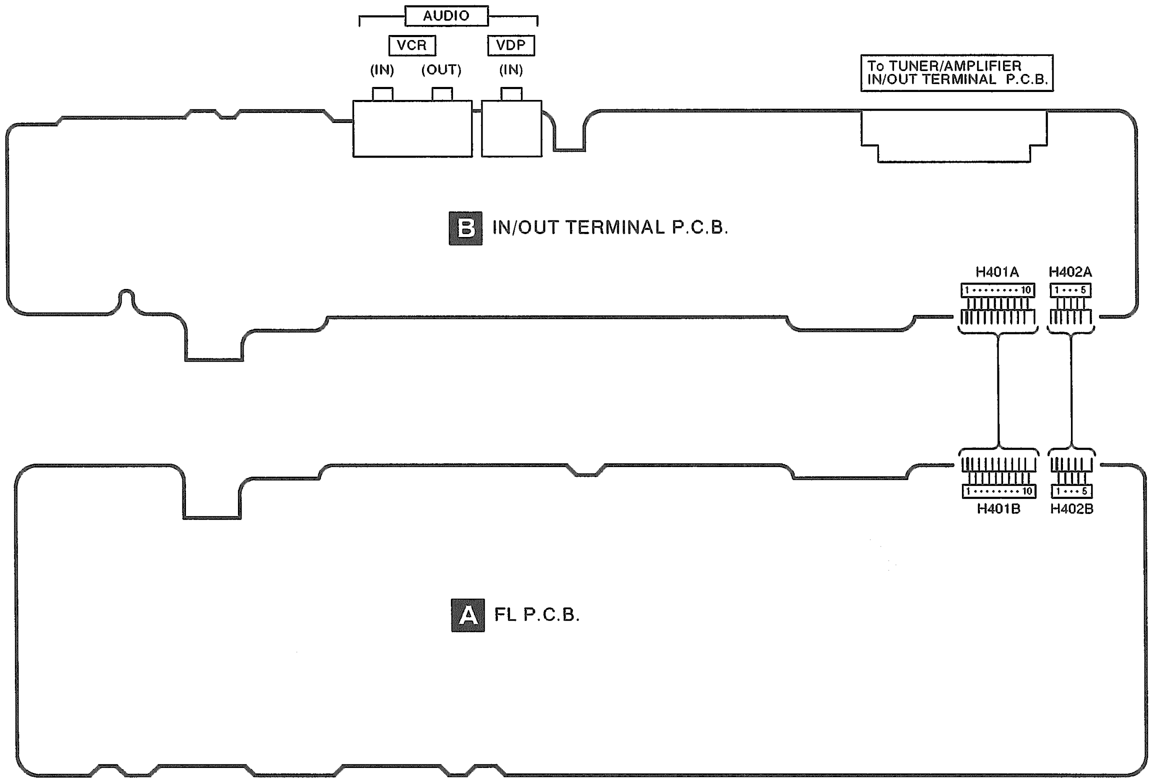

H402A
(FW402A)
C104
C103
Q102
Q101
AC1
AC2
-VP
R103
R104
JK101
Q104
H401A
(FW401A)
To TUNER/AMPLIFIER IN/OUT TERMINAL P.C.B.
C108
TP702
(D.GND)
DG
D101
C105
(CT.GND)
CT-G
R102
R105
+13V
C109
Q103
C107
D103
+7.5V
R101
C154
-7.5V
C153
R154
R153
R152
R151
C152
C151
C101
C102
(A.GND)
AG
C158
C161
IC101
C155
C157
C156
R155
R704
R702
C702
AUDIO
JK701
R703
C701
R701
R706
C704
VDP
(IN)
JK702
R708
R707
C703
(OUT)
IC702
R705
C706
R710
R712
R711
R709
C705
C707
VCR
(IN)
C717
C716
E101

(REP2474F-M)

■ Type Illustration of IC's, Transistors and Diodes

BU2090F-E2 16PIN MC14052BFR2 16PIN BA3835F-E1 18PIN 	BA4558FDXE2 	LC65366A4H96  33 32 48 17 49 16 64 1	2SD2144STA 	2SD2137PQTA 
 2SC3311AIQST 2SD1450STA UN4111AITA UN4211AITA	MA4051MTA MA4062HTA  Ca Cathode A Anode	1SS291TA MA165TA MA700TA  Ca Cathode A Anode	LNJ301MPUJAD  Anode Cathode A Ca	

■ Wiring Connection Diagram


AUDIO
VCR
VDP
(IN)
(OUT)
(IN)
To TUNER/AMPLIFIER IN/OUT TERMINAL P.C.B.
B IN/OUT TERMINAL P.C.B.
H401A
H402A
1 10
1 5
H401B
H402B
A FL P.C.B.

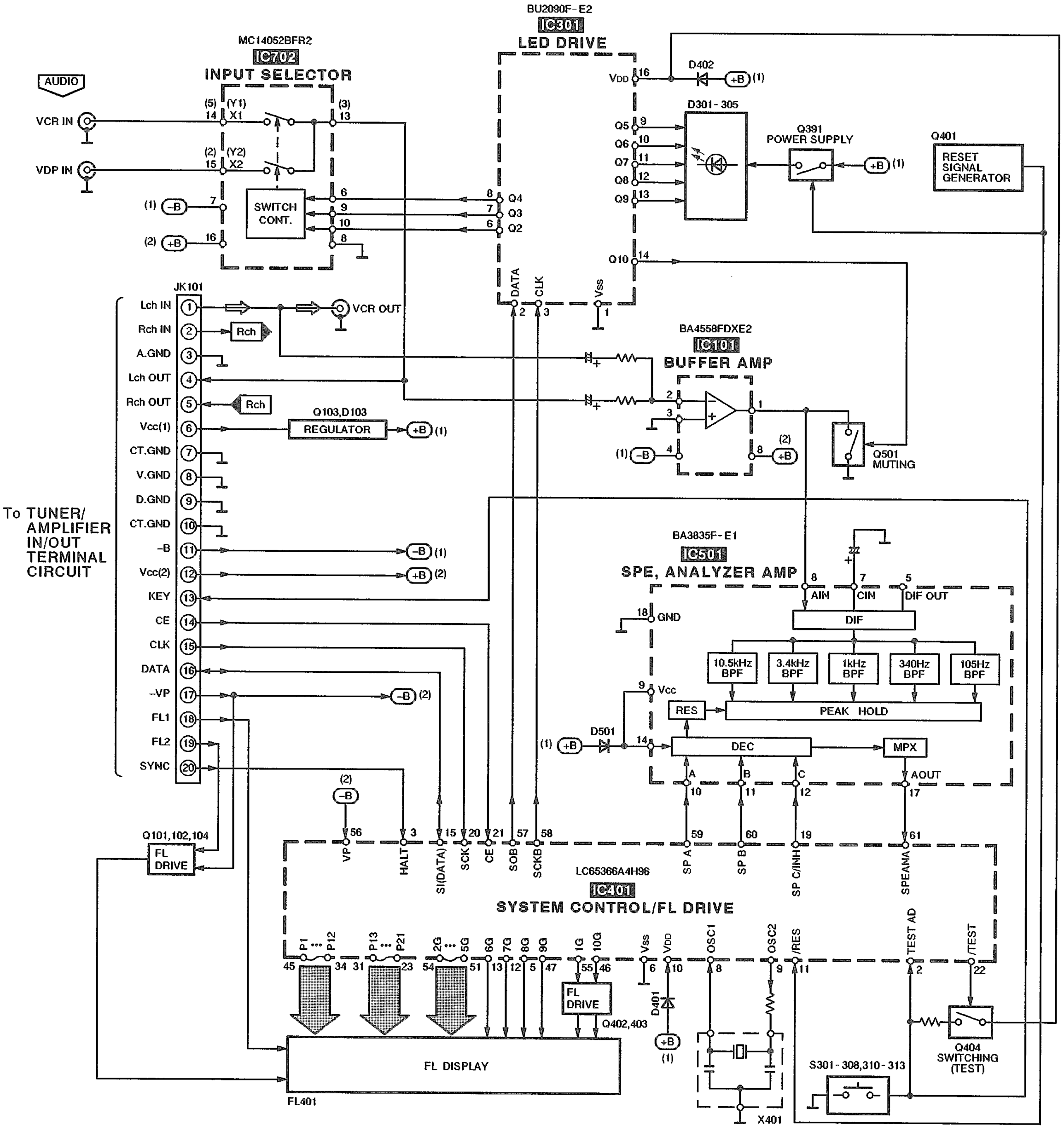
■ Terminal Function of IC's

● IC401 (LC65366A4H96) : System Control / FL Drive

Pin No.	Terminal Name	I/O	Function
1	NC	—	No used, open
2	TEST AD	I	TEST mode key signal input
3	HALT	I	Power failure detect signal input
4	AV+	—	Power supply for analog circuit (+5 V)
5	8G	O	Grid signal output
6	VSS	—	GND terminal
7	NC	—	No used, open
8	OSC1	I	Oscillator connected terminal (4 MHz)
9	OSC2	O	
10	VDD	—	Power supply
11	/RES	I	Reset signal input
12, 13	7G, 6G	O	Grid signal output
14	TEST	—	No used, connected to VSS
15	SI	I/O	Communication data signal input/output
16~18	NC	—	No used, open
19	SP C/INH	O	Select terminal for Spectrum analizer IC output
20	SCK	O	Serial communication signal output (Clock signal output)
21	CE	O	Serial communication signal output (Chip enable signal output)
22	/TEST	O	Test signal terminal
23~31	P21~P13	O	Segment signal output
32, 33	NC	—	No used, open
34~45	P12~P1	O	Segment signal output
46, 47	10G, 9G	O	Grid signal output
48~50	NC	—	No used, open
51~55	5G~1G	O	Grid signal output
56	VP	—	Negative power supply
57	SOB	O	Serial data signal output
58	SCKB	O	Serial clock signal output
59	SP A	O	Select terminal from spectrum analizer IC output
60	SP B	O	
61	SPEANA	I	Analog signal input from spectrum analizer IC
62	CS	I	Chip select signal input terminal
63, 64	NC	—	No used, open

■ Block Diagram

NOTES:
1) ( )INDICATES Pin No.OF RIGHT CHANNEL.
2) ⇨ :SOURCE SIGNAL


AUDIO
VCR IN
VDP IN
MC14052BFR2
IC702
INPUT SELECTOR
(5) (Y1) 14 X1
(3) 13
(2) (Y2) 15 X2
SWITCH CONT.
(1) -B 7
(2) +B 16
6
9
10
8
BU2090F-E2
IC301
LED DRIVE
VDD 16
Q5 9
Q6 10
Q7 11
Q8 12
Q9 13
Q4 8
Q3 7
Q2 6
Q10 14
DATA 2
CLK 3
Vss 1
D402
+B (1)
D301-305
Q391
POWER SUPPLY
+B (1)
Q401
RESET SIGNAL GENERATOR
JK101
Lch IN 1
Rch IN 2
A.GND 3
Lch OUT 4
Rch OUT 5
Vcc(1) 6
CT.GND 7
V.GND 8
D.GND 9
CT.GND 10
-B 11
Vcc(2) 12
KEY 13
CE 14
CLK 15
DATA 16
-VP 17
FL1 18
FL2 19
SYNC 20
To TUNER/ AMPLIFIER IN/OUT TERMINAL CIRCUIT
Rch
VCR OUT
Rch
Q103,D103
REGULATOR
+B (1)
-B (1)
+B (2)
-B (2)
BA4558FDXE2
IC101
BUFFER AMP
2
3
1
(1) -B 4
8 (2) +B
Q501
MUTING
BA3835F-E1
IC501
SPE, ANALYZER AMP
8 AIN
7 CIN
5 DIF OUT
18 GND
DIF
10.5kHz BPF
3.4kHz BPF
1kHz BPF
340Hz BPF
105Hz BPF
9 Vcc
RES
PEAK HOLD
D501
(1) +B 14
DEC
MPX
A 10
B 11
C 12
AOUT 17
(2) -B
Q101,102,104
FL DRIVE
56 VP
3 HALT
15 SI(DATA)
20 SCK
21 CE
57 SOB
58 SCKB
59 SP A
60 SP B
19 SP C/INH
61 SPEANA
LC65366A4H96
IC401
SYSTEM CONTROL/FL DRIVE
P1 ··· P12
P13 ··· P21
2G ··· 5G
6G
7G
8G
9G
1G
10G
Vss
VDD
OSC1
OSC2
/RES
TEST AD
/TEST
45 34 31 23 54 51 13 12 5 47 55 46 6 10 8 9 11 2 22
FL DRIVE
Q402,403
D401
+B (1)
X401
FL DISPLAY
FL401
S301-308,310-313
Q404
SWITCHING (TEST)

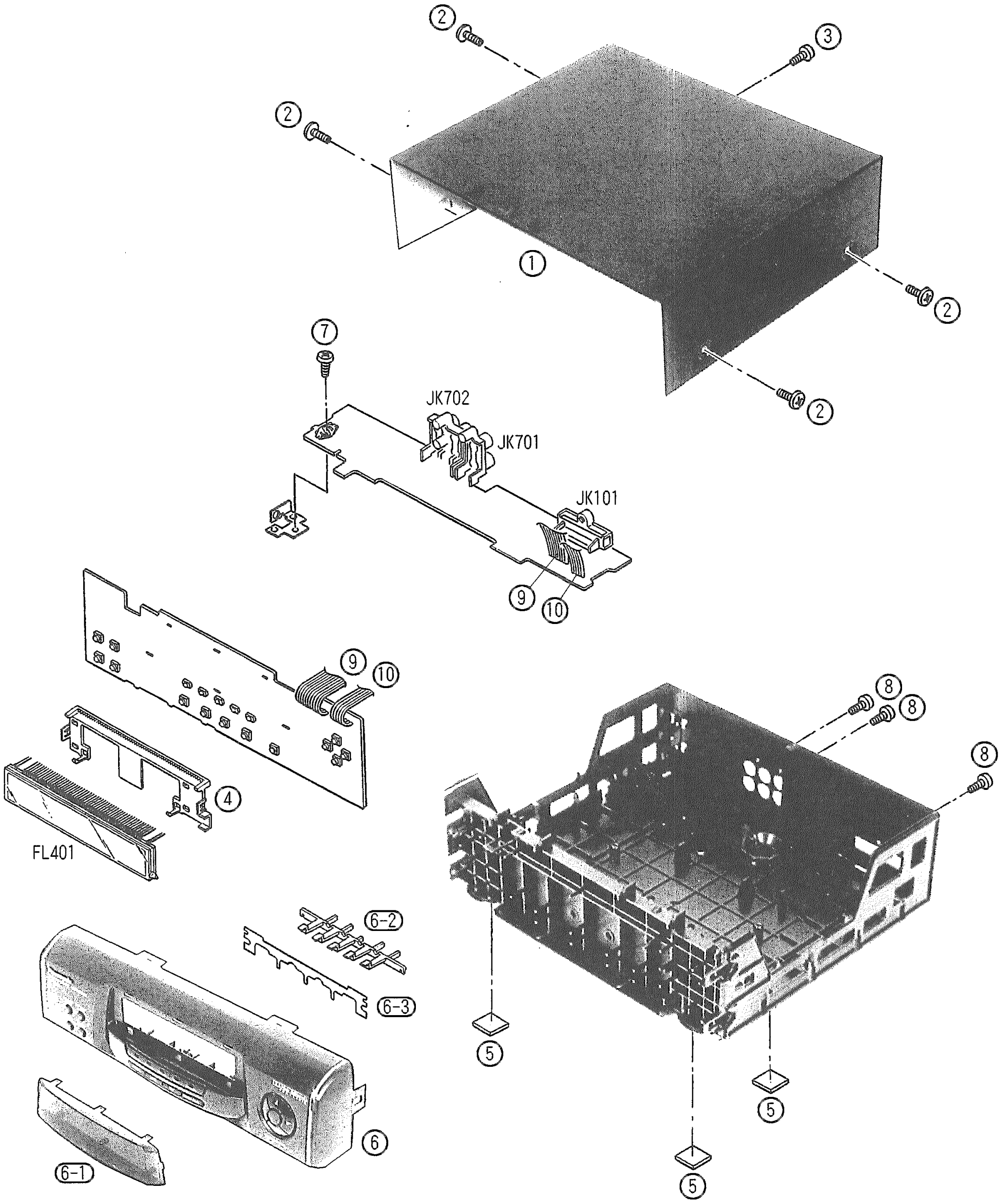
Replacement Parts List

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.
*All parts are supplied by MESA.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	RKM0302-H	CABINET	1	
2	RHD30007-K1	SCREW (BLACK)	4	
3	XTB3+8JFZ	SCREW (BLACK)	1	
4	RMN0424	FL HOLDER	1	
5	RKA0089-K	RUBBER	3	
6	RYP0733N-H	FRONT PANEL ASS'Y	1	
6-1	RKW0504-V	FL PANEL	1	
6-2	RGL0358-Q	LENS	1	
6-3	RMZ0423	SHEET	1	
7	XTBS3+8JFZ1	SCREW	1	
8	XTB3+8JFZ	SCREW	3	
9	RWJ5710240UU	FLAT CABLE (H401A/10P)	1	
10	RWJ5705240UU	FLAT CABLE (H402A/5P)	1	
C101,02	ECA1EM101B	25V 100U	2	
C103,04	RCE1VM471BV	35V 470U	2	
C105	ECEA1HKAR22B	50V 0.22U	1	
C106	ECBT1H102KB5	50V 1000P	1	
C107	ECBT1E103ZF5	25V 0.01U	1	
C109	RCE1CKA100BG	16V 10U	1	
C151-54	RCE1CKA100BG	16V 10U	4	
C155	ECBT1H101KB5	50V 100P	1	
C156	RCE1CKA100BG	16V 10U	1	
C157,58	ECBT1E103ZF5	25V 0.01U	2	
C161	ECBT1H102KB5	50V 1000P	1	
C301	RCE1CKA100BG	16V 10U	1	
C302	ECBT1H104ZF5	50V 0.1U	1	
C303,04	ECBT1H470J5	50V 47P	2	
C391	RCE0JKA470BG	6.3V 47U	1	
C401	ECEA1HKA2R2B	50V 2.2U	1	
C402	RCE1HKA3R3BG	50V 3.3U	1	
C403	RCE0JU102BV	6.3V 1000U	1	
C404,05	RCE1CKA100BG	16V 10U	2	
C406	ECEA1HKA330B	50V 33U	1	
C407,08	RCE1HKA3R3BG	50V 3.3U	2	
C409	ECEA1HKA330B	50V 33U	1	
C410	ECBT1H104ZF5	50V 0.1U	1	
C411	ECBT1E103ZF5	25V 0.01U	1	
C412	ECEA0JKS101B	6.3V 100U	1	
C413	ECBT1H470J5	50V 47P	1	
C416,17	ECBT1H470J5	50V 47P	2	
C418	ECBT1H101KB5	50V 100P	1	
C491	ECBT1H101KB5	50V 100P	1	
C501	RCE1CKA100BG	16V 10U	1	
C502-05	ECEA1HKA0R1B	50V 0.1U	4	
C506	ECBT1E103ZF5	25V 0.01U	1	
C701-06	ECBT1H101KB5	50V 100P	6	
C707	ECBT1H102KB5	50V 1000P	1	
C716,17	ECBT1H104ZF5	50V 0.1U	2	
D101	MA165	DIODE	1	
⚠ D103	MA4062-H	DIODE	1	
D301-05	LNJ301MPUJAD	LED	5	
D391	MA165	DIODE	1	
D401	1SS291TA	DIODE	1	
D402-04	MA165	DIODE	3	
⚠ D405	MA4051MTA	DIODE	1	
D406	1SS291TA	DIODE	1	
D501	MA165	DIODE	1	
D502	MA700TA	DIODE	1	
E101	SNE1004-2	EARTH TERMINAL	1	
FL401	RSL0260-F	DISPLAY TUBE	1	
IC101	BA4558FDXE2	IC	1	
IC301	BU2090F-E2	IC	1	
IC401	LC65366A4H96	IC	1	
IC501	BA3835F-E1	IC	1	
IC702	MC14052BFR2	IC	1	
JK101	RJT065K20	SYSTEM	1	
JK701	SJF3068-7N	VDP IN	1	
JK702	SJF3069N	VCR	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
L401	RLQA100JT-Y	COIL	1	
Q101,02	2SD1450STA	TRANSISTOR	2	
⚠ Q103	2SD2137PQTA	TRANSISTOR	1	
Q104	UN4111	TRANSISTOR	1	
Q391	2SD2144STA	TRANSISTOR	1	
Q401	UN4211	TRANSISTOR	1	
Q402,03	2SC3311AIQST	TRANSISTOR	2	
Q404	UN4111	TRANSISTOR	1	
Q501	UN4211	TRANSISTOR	1	
⚠ R101	ERQ16NKW2R2E	1/6W 2.2	1	
R102	ERDS2FJ104	1/4W 100K	1	
R103,04	ERDS2TJ822T	1/4W 8.2K	2	
R105	ERDS2FJ222	1/4W 2.2K	1	
R151-54	ERDS2TJ563T	1/4W 56K	4	
R155	ERDS2TJ333T	1/4W 33K	1	
R301-05	ERDS2FJ181	1/4W 180	5	
R306	ERDS2TJ820T	1/4W 82	1	
R307-09	ERDS2FJ222	1/4W 2.2K	3	
R315,16	ERDS2FJ222	1/4W 2.2K	2	
R317	ERDS2TJ821T	1/4W 820	1	
R318	ERDS2FJ102	1/4W 1K	1	
R319	ERDS2TJ122T	1/4W 1.2K	1	
R320	ERDS2TJ152T	1/4W 1.5K	1	
R321	ERDS2TJ182T	1/4W 1.8K	1	
R322	ERDS2FJ222	1/4W 2.2K	1	
R323	ERDS2TJ332T	1/4W 3.3K	1	
R324	ERDS2FJ472	1/4W 4.7K	1	
R325	ERDS2FJ682	1/4W 6.8K	1	
R326	ERDS2TJ123T	1/4W 12K	1	
R327	ERDS2TJ223T	1/4W 22K	1	
R328	ERDS2TJ683T	1/4W 68K	1	
R329	ERDS2FJ472	1/4W 4.7K	1	
R391	ERDS2FJ103	1/4W 10K	1	
R401-03	ERDS2FJ104	1/4W 100K	3	
R404	ERDS2TJ562	1/4W 5.6K	1	
R405	ERDS2FJ103	1/4W 10K	1	
R406	ERDS2TJ562	1/4W 5.6K	1	
R407-09	ERDS2FJ102	1/4W 1K	3	
R411,12	ERDS2FJ102	1/4W 1K	2	
R413	ERDS2TJ822T	1/4W 8.2K	1	
R415,16	ERDS2FJ102	1/4W 1K	2	
R417,18	ERDS2FJ101	1/4W 100	2	
R419	ERDS2FJ102	1/4W 1K	1	
R422-25	ERDS2FJ103	1/4W 10K	4	
R501	ERDS2FJ104	1/4W 100K	1	
R502	ERDS2FJ102	1/4W 1K	1	
R503	ERDS2FJ103	1/4W 10K	1	
R504	ERDS2TJ563T	1/4W 56K	1	
R505	ERDS2FJ103	1/4W 10K	1	
R506	ERDS2FJ102	1/4W 1K	1	
R701,02	ERDS2FJ102	1/4W 1K	2	
R703,04	ERDS2TJ473T	1/4W 47K	2	
R705,06	ERDS2FJ102	1/4W 1K	2	
R707,08	ERDS2FJ104	1/4W 100K	2	
R709,10	ERDS2FJ102	1/4W 1K	2	
R711,12	ERDS2TJ473T	1/4W 47K	2	
S301-08	EVQPTD05Q	SW	8	
S310-13	EVQPTD05Q	SW	4	
X401	EF0EC4004T4	OSCILLATOR	1	

■ Cabinet Parts Location


②
③
②
①
②
②
⑦
JK702
JK701
JK101
⑨
⑩
⑨
⑩
⑧
⑧
⑧
④
FL401
⑥-②
⑥-③
⑤
⑤
⑤
⑥
⑥-①

Printed in Japan
F980206000HS/KH